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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1996

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Energy and Water Development Approp...

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BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTH CONGRESS
FIRST SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

JOHN T. MYERS, Indiana, *Chairman*

HAROLD ROGERS, Kentucky
JOE KNOLLENBERG, Michigan
FRANK RIGGS, California
RODNEY P. FRELINGHUYSEN, New Jersey
JIM BUNN, Oregon

TOM BEVILL, Alabama
VIC FAZIO, California
JIM CHAPMAN, Texas

NOTE: Under Committee Rules, Mr. Livingston, as Chairman of the Full Committee, and Mr. Obey, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

JAMES D. OGSBURY, BOB SCHMIDT, and JEANNE WILSON, *Staff Assistants*

PART 8

(Pages 1271–2535)

TESTIMONY OF MEMBERS OF CONGRESS AND OTHER INTERESTED INDIVIDUALS AND ORGANIZATIONS

JUN 1 1995

Printed for the use of the Committee on Appropriations

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1996

HEARINGS

BEFORE A

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1996

TESTIMONY OF MEMBERS OF CONGRESS AND OTHER INTERESTED INDIVIDUALS AND ORGANIZATIONS

TUESDAY, MARCH 28, 1995.

COMMUNITY ENERGY SYSTEMS AND FUEL CELL ENERGY FACILITIES

WITNESSES

REVEREND T. BYRON COLLINS, S.J., GEORGETOWN UNIVERSITY
REVEREND WILLIAM L. GEORGE, S.J., GEORGETOWN UNIVERSITY

Mr. MYERS. The committee will come to order.

This morning we are privileged to have two folks who come quite often to see us, Father Collins, and Father George from Georgetown. We appreciate your coming in again this morning and we would be pleased to hear from you. Your prepared statements will be placed in the record and you may proceed in whatever fashion you care.

Father WILLIAM GEORGE. Mr. Chairman and members of the committee and staff, thank you for the opportunity to testify. I am Father George, Assistant to the President of Georgetown; Father Collins, my senior religion; Dean Price, the university architect emeritus, whose genius has helped us think of these projects you have heard of over the years; and Bernard Del Ray, who is one of the brilliant students working for us. And believe it or not, he is more organized than we are. But we thank you for the opportunity to testify.

Father Collins is going to speak to the project on the commercialization of a total energy regeneration system that does not use incineration that we are hopefully, on the way to getting started. Last year we sought the blessing of the authorizing committees and they gave it to us, but the bill did not get through. So this year we are seeking it again and they are very cooperative so far. So we appreciate the opportunity.

Father Collins will clarify very quickly because he has taught me to be brief.

[The statement of Father George follows:]

Bernard Dean

Del Ray, student
Price, Univ. Architect
Emeritus

Subcommittee on Energy and Water Development
Committee on Appropriations
U.S House of Representatives
Public Witness Testimony for FY'96

March 28, 1995
RHOB - Room 2368
10:00 am

Mr. Chairman and members of the committee, I am Rev. T. Byron Collins, S.J., and I am Rev. William L. George, S.J., Assistants to the President of Georgetown University. Thank you for the opportunity to testify on the commercialization of a Solid Waste - to - Total Energy Regeneration System.

The program request has been made to the Commerce Committee for the authorization to cover the specific elements of the commercialization program. We ask your support today for the necessary planning funds to make this project a reality. A planning fund of $780,000 is essential to allow for the inception of the Solid Waste - to - Total Energy Regeneration System and for the design concepts to be formulated accurately. This project offers an environmentally sound alternative to the bury and burn waste management techniques that are supported in the Presidential request for Non-Defense Environmental Restoration.

All future authorized funds will be privately matched in accordance with the appropriate Department of Energy formula in the authorization program.

Our program is to commercialize a total integrated energy system that uses non-toxic waste to produce electric power, heat, clean chilled water, oxygen, hydrogen, and methanol in an environmentally benign way. Under the leadership of Jet Propulsion Laboratory (JPL - California Institute of Technology), National Renewable Energy Laboratory (NREL), NASA and others, this project would be of special interest to colleges, universities, and hospitals in the United States.

The program involves an assembly of presently manufactured devices into an innovative array that metabolizes waste without incineration into environmentally safe elements including oxygen and hydrogen. This process delivers these gases to the Fuel Cell energy production unit creating heat, electricity, clean water and methanol. The program integrates the 300 KW photovoltaic national exemplar facility, as an essential for the electrolyzer process. The existing cryoaquatic national exemplar will serve as a necessary energy production element for the system. This demonstrates the ability to commercialize the use of these existing technologies in the environmentally sound mitigation of waste and the production of energy, while producing useful elements such as oxygen and hydrogen.

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Commercialization for an On-Site Solid Waste -to- Total Energy Regeneration System

- Creates an integrated, on-site total energy system
  - solid and complex waste mitigation (non-incineration)
  - environmentally benign power generation and storage
  - clean, potable water production
  - chill water production
  - oxygen production for biomass reforming and medical uses
  - carbon monoxide mitigation

- Accelerates U.S. Commercialization
  - biomass reformers, fuel cells, superheated steam reformers, electrolyzers, photovoltaics..

3approp95\energy\tat bdr

March 7, 1995

BASIC ELEMENTS OF JUSTIFICATION
NATIONAL EXEMPLAR ADVANCED WASTE TO TOTAL ENERGY COMMUNITY ENERGY SYSTEM

DEFINITION: NATIONAL EXEMPLAR (UNIQUE EXCEPTIONAL MODEL)
Required Criteria:

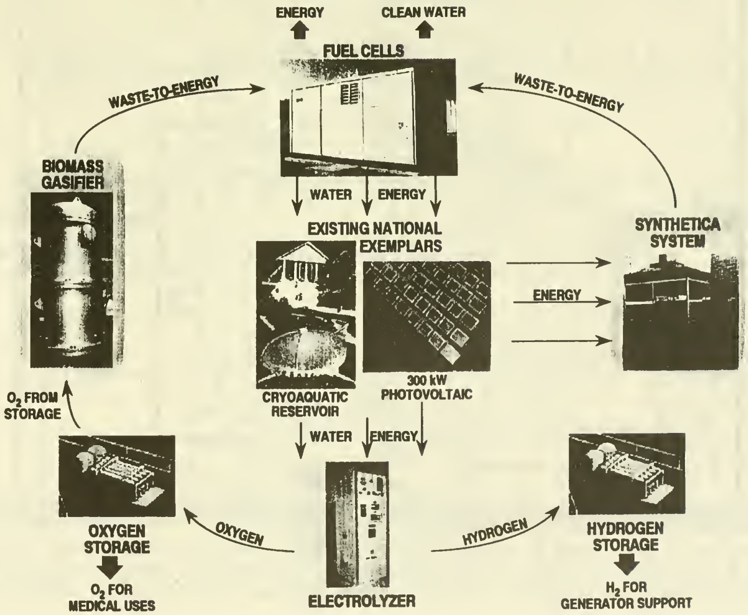
- 1. It must be directly dedicated to national need.
- 2. It must be in the ultimate interest of the taxpayer.
- 3. It must serve the interest of preservation/enhancement of the environment.
- 4. It must have a committed plan for commercialization of advanced US technology.
- 5. It must demonstrate advanced available proven but not yet mass produced US technology; technology commercial but not yet commercialized.
- 6. It must serve as an exemplar for a significant number of similar entities. and have immediate replicability in the commercialization plan as broad as possible, and for export.
- 7. It should be designed as a new Architecture in integrated systems engineering and design for maximum benefit.
- 8. It must be a model neighbor and benefit to the community.

This exemplar directly addresses the overwhelming toxic and solid waste problem of the US and the world by rendering this horrendous environmental problem into minuscule clean useful particles on-site producing a variety of useful necessary products. directly. including total energy systems. This exemplar provides the opportunity to eventually eliminate landfills. incineration problems. expensive regulated solid waste transportation and packaging. decreasing need for water treatment plants. pervasive energy and water conservation with on-site pure water production (10.000 gallons per day.approximately), on-site total energy production as distributed clean power. on-site inexpensive hydrogen production increasing the arrival time of a true hydrogen infrastructure. This exemplar demonstrates how solid waste. even the most complex of wastes is not only mitigated on-site. but additionally produces oxygen for bio-mass reformation enhancement and medical uses. This exemplar mitigates carbon monoxide in the ambient air of the system. etc. Public and private utilities would directly benefit by decreasing large long term capital costs of large plants by clean distributed reliable power. This system also produces methanol and hydrogen fuels for transportation.

Integrated Solid Wa[illegible] - To - Energy System

March 7, 199

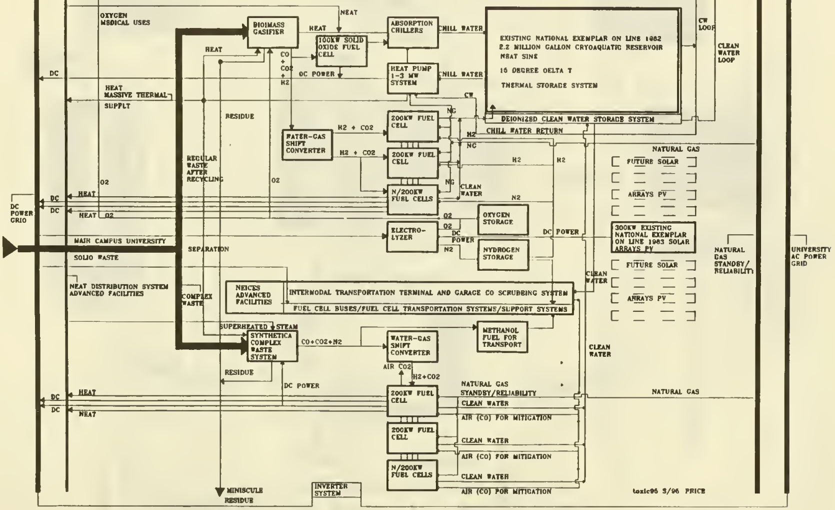
(Community Energy System)



NATIONAL EXEMPLAR IN THE NATION'S CAPITAL ADDRESSING CLEAN AIR ACT AMENDMENTS THROUGH NATIONAL EXEMPLAR INTEGRATED COMMUNITY ENERGY TOTAL REGENERATION POWER SYSTEM INTERMODAL PARKING BUS FACILITY.

ULTRA LOW EMISSIONFUEL CELL POWERED NATIONAL EXEMPLAR INTEGRATED (ADVANCED) COMMUNITY ENERGY SYSTEM (NEICES) THE LIVABLE COMMUNITIES INFRASTRUCTURE, INCORPORATING THE EFFICIENT GENERATION/REGENERATION OF POWER. THE PRODUCTION OF ALTERNATIVE ULTRA LOW EMISSION TRANSPORTATION FUEL CELL FUELS, MITIGATION OF CARBON MONOXIDE FROM TRANSPORTATION FACILITIES, THE RESOLUTION ON-SITE OF SOLID WASTES PROVIDES BY THIS IMPORTANT INTEGRATION THE TRANSFORMATION OF MOST WASTES INTO VERY VALUABLE NECESSARY PRODUCTS FROM GENERATION/REGENERATION PROCESSES BY RENEWABLE ENERGY MASTER PLANNING. PRODUCTS YIELDED FROM THIS SYSTEM ARE METHANOL, HYDROGEN, OXYGEN, POWER, HEAT, CHILL WATER, DEIONIZED CLEAN WARTER, MITIGATION CO, MINISCULE RESIDUE ON-SITE. ADVANCED SYSTEMS.

THE GENERIC/SITE SPECIFIC MODEL



Father COLLINS. We are here, Mr. Myers and committee, to give a very unusual opportunity for this committee and ourselves.

Mr. MYERS. Then you don't want any money?

Father COLLINS. A few dollars. Just a few.

Every place has a problem with waste, so do we. We have worked with the Federal agencies and a whole conglomerate of them and developed a plan with them to take this waste we presently haul off and change it into energy, change it into electricity, heat, water, and methanol. The parts for doing this exist but they have not been put together.

It is the genius of Dean Price, with the various Federal experts, that have done this. What we need and we are asking the committee for is planning money. We have done a great deal of work already. The concept has been proved, and what we need are funds to start the planning with the agencies to put it in place.

Mr. BEVILL. Good morning.

Father COLLINS. Good morning, Mr. Bevill. Pleasure seeing you.

Seven hundred eighty thousand dollars, when we get going. First, it is not incineration. There is no incineration in the process. It is a very unique process. When we get it under way, we will have the match. According to the formula, we will have the match.

The two key elements or three key elements, one is the trash, which we have; the other is a 300 kilowatt facility that becomes energy producing using the sun as a means of producing electricity; and the third part is a large heat sink we call a cryoaquatic reservoir. Those all exist. So the cost for putting the system in place is rather minimal, and what we need are the funds to plan it.

We are certain it will spread right across the country—we have done this—taken over by the private and the public and State authorities to put the system in with your investment cost. That is our request.

Are there any questions?

Mr. MYERS. You can build it in-house?

Father COLLINS. Yes.

Mr. MYERS. You would have to contract out on any of this?

Mr. PRICE. You would have mini contracts out. Mini contracts out. Primarily through the JPL, NASA side of the house. They would be the leaders, as they are of the large coalition that is behind all this.

Mr. MYERS. Over how many years to get this operational?

Mr. PRICE. We are looking at a schedule of about four years, total, including the testing. But, also, this is a generic system that we hand off to a whole range of other projects, and they would be, this generic system, once it is developed, would be handed off within a very short space of time to these other projects, which we will try to assist in the commercialization. They are all over the United States.

Mr. MYERS. Mr. Bevill.

Mr. BEVILL. I would just say welcome to my two favorite Fathers.

Father COLLINS. Thank you, Mr. Bevill.

Father WILLIAM GEORGE. Thank you, Mr. Bevill.

Mr. BEVILL. Good to see you again.

Father COLLINS. Thank you.

Mr. MYERS. Thank you again. We appreciate your testimony. At least we don't have to go to Seattle this weekend, do we?

Father WILLIAM GEORGE. Go Hoyas. And I would buy my tickets for next year, though.

Mr. MYERS. We will count on that. Thank you for your testimony.

Father WILLIAM GEORGE. One swing guard and we have got it.

TUESDAY, MARCH 28, 1995.

BIOMASS

WITNESS

B. REID DETCHON, EXECUTIVE DIRECTOR, BIOMASS ENERGY ALLIANCE

Mr. MYERS. Next the committee will hear from Reid Detchon, Executive Director of the Biomass Energy Alliance.

Good to have you back, Mr. Detchon. Your prepared statement will be placed in the record and you may proceed as you like.

Mr. DETCHON. Thank you for the opportunity to testify today. I had the honor of appearing before this committee for the Office of Conservation and Renewable Energy during the Bush administration. It is a pleasure to be back.

I am representing the Biomass Energy Alliance, a diverse and broad-based coalition of industry, utilities, agriculture, and environmental groups, who agree on very little except the potential of biomass energy.

I am here today with good news. I am here today because a modest investment made by this committee over many years is about to pay off, and I wanted you to know about it. Technology developed by DOE and others has now brought biomass energy very close to being economically competitive with conventional alternatives. Indeed, a process developed and tested with your support at NREL, the National Renewable Energy Laboratory, is about to come to fruition in the coming year using rice straw in Gridley, California. This process converts cellulose—the common element in virtually all plant matter—into ethanol. The next application, Mr. Chairman, is likely to involve the processing of corn fiber at an existing ethanol plant.

For Mr. Bevill, I would note that the Alabama Farmers Federation and Auburn University are very enthusiastic about developing switchgrass as an energy crop in the Black Belt. In urban areas, an early market opportunity involves converting up to half of the municipal waste stream to ethanol.

This same technology can be a bridge to biomass power production that would use advanced gasification technology, developed again with Federal support under the clean coal program.

Mr. Chairman, I know agriculture is important to your district, as it is to virtually every Member on this subcommittee. But it is not often that you have a chance in dealing with the energy budget to do something of direct benefit to farmers. This is such an opportunity. Biomass has the potential to be a major new source of revenue and jobs for American agriculture and the rural economy—one that would produce not millions but billions of dollars of additional farm income; one that will create not hundreds but tens of thousands of new jobs.

I want to be clear about the scale of this opportunity: Within the next half century, biomass energy has the potential to produce 10 to 15 quads of energy—that is, 10 to 15 percent of our total national energy needs, or roughly twice the current output of our nuclear energy plans—in the form of electricity or fuels.

This would mean: One, more jobs in rural America—17,000 jobs created for every billion gallons of ethanol produced; two, more income for farmers. Producing five quads of energy from biomass crops grown on 50 million acres would increase farm income by $12 billion a year; three, less imported oil. Biomass fuels could replace half or more of the Nation's current gasoline consumption. That would keep $25 billion a year at home that we now send abroad for imported oil, reducing our trade deficit and enhancing our energy security; four, improved soil and water quality. Biomass crops restore soil carbon, reduce soil erosion and chemical runoff, and enhance wildlife habitat; five, reduced greenhouse gas emissions. Biomass needs as much CO_2 to grow as it gives off when it is used, creating a closed carbon cycle, and, thus, reduces the chance of global warming.

For these reasons, I urge the subcommittee to support the DOE budget request for biomass programs and especially for projects with local communities and the private sector. Indeed, I would respectfully recommend an increase of $5 to $10 million to scale up DOE's ethanol conversion process, not to subsidize private industry, but to bring us to a point where we can consider the government's role completed and hand off the technology for commercial adoption.

This point is very close at hand but will be significantly accelerated with these projects, such that funding now will have the effect of reducing funding needs in the future.

Mr. Chairman, we now spend $50 billion a year on imported oil. Our dependence is at 50 percent and rising every day. We are gambling our economic prosperity on the continued stability of Saudi Arabia, Libya, Iran, and Iraq. I would argue that is not a good bet.

Biomass offers us a chance to reverse our growing dependence on imported oil and bring those dollars home from the Middle East to the Middle West.

For the biofuels programs in fiscal year 1996, DOE has requested $38 million. We spend that amount on imported oil every 6 hours and 40 minutes.

You may ask how in good conscience I can recommend an increase at a time when so many other programs are being cut? Mr. Chairman, I look back to the Persian Gulf War and I ask can we in good conscience fail to make the investments now that will reduce our need for military action, action that will cost us a thousand times more than the total budget we are discussing today, and that will also cost us something even more precious, the lives of young Americans? We must not make that choice, and it is for that reason I ask your support.

Thank you for the opportunity to testify.

Mr. MYERS. Thank you, Mr. Detchon. Thank you for your fine testimony.

[The statements of Mr. Detchon and Mr. Holmberg follow:]

Statement of B. Reid Detchon
Executive Director, Biomass Energy Alliance

Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
March 28, 1995

SUMMARY: Biomass energy development offers enormous potential benefits for the Nation -- more jobs in rural America, more income for farmers, less imported oil, a smaller trade deficit, improved soil and water quality, and reduced greenhouse gas emissions. The Department of Energy's FY 96 request for Biofuels Energy Systems -- specifically, $33 million for electric power applications and $38 million for transportation fuels -- should be fully funded and increased by $5-10 million for projects that scale up DOE's ethanol conversion process for commercial adoption.

Mr. Chairman and members of the Subcommittee, I am here today with good news. I am here today because a modest investment made by this panel over many years is about to pay off, and I wanted you to know.

I am the executive director of the Biomass Energy Alliance, a broadbased coalition of industry, utilities, agriculture, and environmental groups. More specifically, my testimony today is supported by the Clean Fuels Development Coalition and the American Biofuels Association, from the fuels industry; by the Utility Biomass Energy Commercialization Association, representing utilities; by the National Association of Conservation Districts, the American Farmland Trust, and the Alabama Farmers Federation, among agricultural groups; and by the Natural Resources Defense Council, the Union of Concerned Scientists, and the Environmental and Energy Study Institute, among environmental groups. This unusual diversity is itself testimony to the varied benefits of biomass energy.

During the Bush Administration I was the Principal Deputy Assistant Secretary in the Office of Conservation and Renewable Energy, and I took a particular interest in biomass at that time. On leaving office, I could have chosen to carry on with any of the promising technologies we had under development -- or to come here today simply to support the entire renewable energy budget. There are many worthy items there to defend. But I have chosen to spend my time and my time here today on biomass energy -- because of its enormous potential benefits for the Nation in terms of our energy supply, the environment, and economic development.

Mr. Chairman, I know that agriculture is important to your district, as it is to virtually every member on this subcommittee. But it is not often that you have a chance, in dealing with the energy budget, to do something of direct benefit to farmers. This is such an opportunity.

Biomass has the potential to be a major new source of revenue and jobs for American agriculture and the rural economy -- one that will produce not millions, but billions of dollars of additional farm income; one that will create not hundreds, but tens of thousands of new jobs.

I want to be clear about the scale and scope of this opportunity: Within the next half-century, biomass energy has the potential to produce 10 to 15 quads of energy -- that is, 10 to 15 percent of our total national energy needs, or roughly twice the current output of all our nuclear energy plants -- in the form of either electricity or fuels. This kind of contribution would have major benefits not just for energy but for rural economic development, our balance of trade, and the environment.

Biomass is stored solar energy, captured in plant material, either raw or processed. Examples include:
- Fast-growing trees and grasses, like hybrid poplars or switchgrass;
- Agricultural residues, like corn fiber, rice straw, or used vegetable oils;
- Wood waste, such as sawdust and tree prunings, paper trash and yard clippings.

Technology developed by the U.S. Department of Energy and others has brought biomass energy very close to being economically competitive with conventional alternatives. The critically needed next steps are continued technical progress in conversion efficiency and construction of a series of integrated demonstration facilities that will give farmers and investors the confidence to build this new American industry.

For example, a process developed and tested with your support at the National Renewable Energy Laboratory is about to come to fruition in the coming year using rice straw in Gridley, California. This process converts cellulose -- the common element in virtually all plant matter -- into ethanol. Let me explain. When you see a fallen tree in a forest, you may also see a fungus growing on it. The fungus is converting the cellulose in that tree to sugar. What NREL has done is mimic, speed up, and concentrate that process.

A conventional ethanol process converts carbohydrates in the form of starch to sugar and then ferments the sugar to alcohol. The NREL process does the same for cellulose -- a vastly more abundant carbohydrate. What this does is open up an almost infinite array of potential feedstocks, ranging from agricultural and forestry wastes -- like rice straw, corn fiber, sawdust, or cotton gin trash -- to low-cost, fast-growing crops like switchgrass, willows, or hybrid poplars that could be grown specifically for an energy application.

This same technology can be a bridge to biomass power production that would use advanced gasification technology, developed again with federal support under the Clean Coal program. Biomass power could emerge as a major contributor to our energy supply, beginning with niche opportunities where low-cost feedstocks are available and preparing for the possibility that concerns about global warming will lead to greater emphasis on renewable, carbon-neutral energy sources.

The potential benefits of biomass energy development are enormous:

- Rural economies will grow because of the development of a local industry to convert biomass to either electricity or transportation fuel. Because biomass is inherently bulky and costly to transport, conversion facilities will be located where the crop is grown. That means jobs -- for example, the U.S. Department of Agriculture has estimated that 17,000 jobs are created for every billion gallons of ethanol produced.

- Farmers will see their income rise. The Electric Power Research Institute has estimated that producing 5 quads of electricity from biomass grown on 50 million acres would increase farm income by $12 billion a year.

- Biomass has the greatest potential of any renewable energy option for baseload electric power production. Co-production facilities will allow the production of electricity when it is needed and ethanol when it is not -- acting, in effect, as "seasonal peaking" facilities.

- The Nation's energy security will be significantly enhanced. With sustainable agricultural practices, biomass fuels could replace half or more of the Nation's entire current level of gasoline consumption. That would keep upwards of $25 billion a year working at home that we now send abroad for imported oil.

- Biomass crops grown on agricultural land will restore soil carbon, reduce erosion and chemical runoff, and enhance wildlife habitat. Indeed, perennial energy crops are the same kinds of crops that we now plant to protect fragile land under the Conservation Reserve Program. They can be harvested without damage to the root structure and thus continue to serve as a soil stabilizer and stream buffer and as habitat for wildlife.

- The use of biomass will greatly reduce the Nation's greenhouse gas emissions. Fossil fuels remove carbon that is stored underground and transfer it to the atmosphere. Biomass needs as much CO_2 to grow as it gives off when it is used -- thus creating a closed carbon cycle. In addition, substantial quantities of carbon are captured in the soil through biomass root structures, creating a net carbon sink.

- As concern grows about the rapidly rising levels of greenhouse gases produced as developing countries become industrialized, biomass energy technology may emerge as a major American export.

For these reasons, I urge the Subcommittee to support the proposed level of funding for the biomass programs contained in the Department of Energy's FY 96 budget request, and especially for partnerships with local communities and the private sector. Indeed, I would respectfully recommend a modest increase of $5 million to $10 million to scale up DOE's ethanol conversion process -- not to subsidize private industry, but to bring us to a point where we can consider the government's role completed and hand the technology off for commercial adoption. This point is very close at hand but will be significantly accelerated with these projects -- such that funding now will have the effect of reducing funding needs in the future.

Mr. Chairman, we now spend $50 billion a year on imported oil. Our dependence is at 50 percent and rising every day. We are gambling our economic prosperity on the continued stability of the House of Fahd in Saudi Arabia, on the mullahs of Iran and Iraq, on the fragile nations that emerged from the wreckage of the Soviet Union. I would argue that that is not a good bet, and that the size of our investment in alternatives to imported oil is in no way proportionate to the economic threat that we face. Biomass offers us a chance to reverse our growing dependence on imported oil and bring those dollars home -- from the Middle East to the Middle West. For the biofuels program in FY 1996, the Department of Energy has requested $38 million. We spend that amount on imported oil every 6 hours, 40 minutes.

You may ask how in good conscience I can recommend an increase at a time when so many other programs are being cut. Mr. Chairman, I understand the moral necessity of reducing the debt we are passing on to future generations and the extraordinary pressures you find yourselves facing to reduce Federal spending. But the budget process is fundamentally about setting priorities, and I believe the potential payoff from this technology -- the bang for the buck -- is as large as any in the Department of Energy and larger than most. Having shown steadfast support for this technology through a decade when the outcome was much less clear than it is today, you now have the opportunity to take the final step toward realization of a dream -- domestically produced, environmentally beneficial, cost-competitive renewable energy.

Finally, I would look back to the Persian Gulf war and to the virtual certainty that that is not the last time intervention will be required to maintain the free flow of oil to the Western world. And I would ask, can we in good conscience fail to make the investments now that will reduce our need for military action later -- action that will cost not 10 times more, not 100 times more, but 1,000 times more than the total budget we are discussing today -- and that will also cost us something even more precious, the lives of young Americans. We must not make that choice, and it is for that reason that I ask your support.

Thank you for the opportunity to testify today.

STATEMENT OF WILLIAM C. HOLMBERG
PRESIDENT, AMERICAN BIOFUELS ASSOCIATION

TO THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

MARCH 28, 1995

Mr. Chairman, I submit this testimony in support of my colleague B. Reid Detchon, Executive Director of the Biomass Energy Alliance. I fully concur with his thoughts and his request for DOE's FY96 budget for biomass energy programs. I do not imply, however, his support for my comments.

I would like to add three points to the record.

1. It is critical that America reduces both the budget and trade deficits. The best way of doing that is to work on two fronts: I) Create basic "New Wealth Industries" (including ethanol plants -- a paper on this subject is attached) with large economic multipliers that will generate needed jobs and expand the tax base; and 2) Produce alternative transportation fuels like ethanol and biodiesel in order to reduce our threatening dependence on imported oil and petroleum products. Reid Detchon addressed both issues and pointed out the many other benefits of ethanol.

2. I have been involved in biomass energy systems (biofuels, bioenergy and biogas) for almost 20 years, at EPA, DOE and in the private sector. Based on this experience, I would like to make several recommendations:

o Improve cooperation between DOE, USDA and EPA in advancing programs and policies impacting these industries in order to provide a better return on the public investment.

  - Until the appointment of the late Ed Madigan as Secretary of Energy, USDA claimed that ethanol was not an economically viable transportation fuel. USDA's policy work is now on track, but their research activity remains flawed. Public funds invested in USDA research has not appreciably advanced the fuel ethanol industry (or the biodiesel industry). Savings are in order.

- EPA effectively funded basic research leading to an advanced, high performance alcohol engine. DOE has been slow to pick up on this opportunity to work with the private sector in taking this engine technology to commercialization. Such efforts are now underway and should be encouraged and appropriately funded. This advanced engine, using ethanol, will provide miles/gallon roughly equivalent to a similar engine using gasoline even though ethanol has about 30% less Btu/gallon than gasoline. (While this is an Interior Appropriations issue, it will have a major impact on the biofuels industry).

- There has been a conflict between the DOE policy office and the program office in terms of energy requirements to produce ethanol. That has caused confusion in the industry and in the marketplace. Resources that could have been used to advance the industry were wasted in dealing with this conflict. Savings are in order.

- There was outstanding cooperation between EPA and USDA in trying to arrive at an appropriate role for ethanol in reformulated gasoline. Documents produced by the DOE policy office confused the issue -- again wasted resources.

o It is important that the commercialization of cellulosic biomass (CB) to ethanol industry be seen as an agricultural program rather than an industry owned and operated by major timber. logging and paper industries.

- Efficiency of row crops (corn, sorghum, wheat, barley, etc) to ethanol is improving at the rate of about 2%/yr. Consequently, this technology may well be able to keep pace with the CB to ethanol industry when that industry turns to crops (trees. grasses, etc.) for feedstocks (initially, no-cost or low-cost CB will be available to produce ethanol at reduced cost).

- While competition is good, the agricultural sector has major investments in the ethanol industry. The early incorporation of a CB-to-ethanol component into an existing row-crop-to-ethanol plant will go a long way in encouraging cooperation between the farm community and the soon-to-emerge CB to ethanol industry. The demonstration row-crop-to-ethanol plant could initially use agricultural residue as their CB feedstock. May I suggest that the Reeve Agri Energy plant in Garden City Kansas (a well integrated 4,300 acre farm, 10 million gal/yr ethanol plant, 20,000 head of cattle on feed and a fish farming operation --video tape included in this package) is a good candidate for such a demonstration.

- If the agricultural sector sees the CB to ethanol industry as a threat to their 20 year struggle to improve the rural economy, it could be troublesome and wasteful of national resources. On the other hand, mutual cooperation between the two segments of the ethanol industry will serve the nation well.

o While adequate funding of DOE's biomass program is essential to capture the benefits outlined in Reid Detchon's testimony, additional steps are needed to optimize needed advances while minimizing costs to the consumer and the taxpayer.

- Greater cooperation between DOE, USDA and EPA as outlined above.

- Of far greater importance is a truce between the multinational oil companies and the renewable/alternative fuel industries in the U.S. After over 20 years of concerted efforts and major expenditures of public funds, these industries have gained about a 4% share of the transportation fuels market.

  This is hardly a threat to the multinationals since that market has expanded by about 25% in a similar period. Furthermore, that expansion has largely been satisfied by increased foreign imports of oil and petroleum products. Much of these imports come from unstable parts of the world or from countries outright hostile to the U.S.

  America needs an Insurance Policy against disruption of those supplies. America needs to bring jobs lost to foreign oil fields home to work in renewable and sustainable energy industries.

  The most cost effective and least disruptive way of doing this would be a spirit of cooperation between the multinational oil companies and U.S. renewable/alternative fuel industries. It is, however, unlikely that the "lion will lay down with the lamb." But, it should be possible for the Government and the Congress of the United States to assist in achieving a level of cooperation that will provide for the increased production of renewable/alternative fuels in order to, at a minimum, stabilize the need for foreign imports of oil and petroleum products,

Mr Chairman, thank you for this opportunity to present my thoughts to your committee. I fully realize that it is not the job of your committee or the congress to micro-manage the departments and agencies of government. It should be appropriate, however, to ask question. May I ask that appropriate questions be asked based on the information provided in these remarks.

NEW-WEALTH INDUSTRIES:

The Role of Biofuels
And Other Renewable Energy Technologies
in
Strengthening the Economy,
Building the Job Base,
Promoting National Security,
And
Enhancing The Environment of the United States

A Concept Paper Presented By

THE AMERICAN BIOFUELS ASSOCIATION

To The

REGIONAL WORKSHOP ON BIOMASS POWER PRODUCTION

Burlington, VT
October 25, 1994

INTRODUCTION

The role biomass can play in service to the nation, its environment and to the global stabilization of greenhouse gases is well-known. What is not as well known is how the synergistic relationship between *biomass energy systems* and *New Wealth Industries* can rapidly create new wealth for America. Nor is there an adequate understanding of how the development of *New Wealth Industries* can revitalize basic industries, the economy and the spirit of America.

At this workshop there will be numerous reports on the many benefits of biofuels. To avoid repetition, I am submitting as reference material, a biofuels-oriented report prepared by a consortium of groups, industries and associations. As further background, also attached is a report on biorefineries prepared by the Institute For Local Self Reliance.

This paper will focus on other, less apparent, dimensions to biofuels that are largely overlooked because they are so fundamental or perhaps "old fashioned." It will cover several disciplines and technologies. These dimensions are based on the concept of *New-Wealth Industries* (NWI).

Biofuels include: ethanol, biodiesel (made from vegetable oils, animal fats and used oils and fats), methanol and other alcohols from biomass, biogas used in internal combustion engines, and hydrogen from biomass. In reviewing the NWI concept, please keep in mind that biofuels along with bioenergy -- the production of thermal energy or electricity from biomass -- are playing, and will continue to play, an increasingly major role in the creation of NWI.

What are NWI? By definition, NWI are those industries based on natural resources. In any economic transaction, someone is debited and someone credited. New wealth is generated when nature is credited and human kind is debited -- and nature does not demand payment. (The situation where penalties of natural resource depletion and environmental degradation occur will be covered in a later report.) New-wealth industries include:

- **The extractive industries**: Oil, gas, coal, precious metals, minerals, etc;
- **Agriculture:** The growing and/or harvesting of all forms of plant and animal life from the terrestrial environment for food, feed, fiber, fuel, chemical feedstocks, and finished products (with an emphasis on enhancing the rural environment);
- **Silvaculture:** The growing and/or harvesting of woody biomass for use as lumber and other wood products, pulp, fiber, fuel, chemical feedstocks, etc. (Biomass for fuels and energy can branch over into agriculture, when its production and harvesting become integral parts of farming operations);
- **Aquaculture:** The growing and/or harvesting of all forms of living matter from the aquatic environment for food, feed and fertilizers as well as for other commercial or industrial purposes;
- **Renewable energy:** Solar, wind, hydro, geothermal, ocean thermal, hydrogen, and biomass (also included under agriculture and silvaculture);
- **Recycling and salvaging of materials:** Reusing natural resources; and
- **Human creativity:** The generation of ideas and concepts leading to new developments (a gift of God or nature that increasingly depends on a background of education, interest in learning and a range of sophisticated experiences).

These NWI are gifts of God (or nature, if that is one's perception), subject to the stewardship of human kind. (While the religious or moral fabric of a society provides the essential backdrop for NWI, an appropriate exploration of this critical dimension is best covered in a separate paper.) Because NWI are all basic industries (the beginning of long, productive paths to the ultimate consumer), they have the highest economic and job creating multipliers. Many would say they are fundamental to the well being of society and their preservation is essential to the long-term security of any nation.

Today, however, there is a relative fragility in these NWI, which is, when taken in concert, disquieting:

- While some elements of the **extractive industries** are in good resource and economic health, many suffer from resource depletion, are subject to expensive environmental controls, have seen production shift to foreign countries (where raw materials maybe more abundant and labor less expensive), and lack capital to maintain market share in the face of international competition and environmental imperatives.

- **Agriculture** remains one of the backbone industries of America. Productivity continues to rise and, thanks to modern farming practices, soil and water conditions are actually improving. However, there are problems in terms of farm land depletion and land ownership, pesticides, herbicides and fertilizers, as well as mounting concerns over the economic and human sides of the industry:

- **Silvaculture** also continues to maintain strength, but suffers from many of the concerns facing agriculture: steady transfer of productive lands to major corporations or holding companies, environmental pressures and public concern, adverse weather conditions and the depletion of soil in terms of minerals and organic matter -- leading to less productivity and increased fragility of the forest stands.

- **Aquaculture** (in terms of natural fisheries) has practically disappeared in the United States. This is largely due to over fishing, environmental damage and pollution of the nation's waters. Although an increasing share of the fish and other aquatic species needed to meet the nation's needs come from "farming," it is important to ensure that more of these farms are domestic, and that natural fisheries be restored in all U.S. waters.

- **Renewable energy** systems have made impressive technological advances over the past 25 years. In addition, U.S. manufacturers have now reached a level of maturity where they can not only meet the increasing energy needs of the nation in a sustainable manner, but where they can lead the world in marketing these technologies internationally. While these industries are well positioned, they need to be "energized" through enlightened government policies and support.

- **Recycling and salvaging of materials** is also making impressive progress, but, like renewable energy systems, effective public policy and resource support lags behind technological and economic potential. With the needed level of support, valuable natural resources will be saved, the environment enhanced or spared, jobs created and money saved/made.

- **Human creativity** is also in trouble. Because of scientific and educational advances, creativity among some Americans is currently at an all time high. However, there is a waning in the country's potential. Too many Americans are falling behind in terms of needed education and experiences. Further, increasing specialization and compartmentalization makes cross fertilization of ideas between different fields of knowledge more difficult. There also seems to be a decline in the human spirit and a lack of will to reach beyond individual needs in order to work towards the attainment of larger goals serving the nation as a whole.

If a new dynamic approach is taken in developing these *New Wealth Industries*, maximum benefits to the nation will result. The reasons for this are:

- These industries are amenable to a cross-cutting, holistic approach which synergizes their contribution to the nation;
- These industries will either directly or indirectly enhance the sustainability of our society and environment;
- Because these industries can be made productive and sustainable, they offer new dimensions and tools to heal the human spirit;
- The large multiplier effect of these industries will create huge numbers of new jobs ar ' industries, bringing economic strength to many parts of the nation and thereby providing the economic underpinnings for social and spiritual revitalization; and
- The NWI will build upon an extremely broad base of resources and skills. Consequently, it is more likely (and this should be encouraged) that the workers, managers and owners of these industries will come from all segments of the nation's diverse population. The NWI will benefit from this diversity of viewpoint and background, and will, because of "new frontiers," have less propensity to favor special segments of society because of past or present advantages.

All of these factor combine to enhance **human creativity**, not only among those involved in the NWI, but, as a result of general enlightenment, throughout the nation. This will occur because it is morally, spiritually, socially, environmentally, and economically correct to protect and enhance the nation's natural resources and, using best modern science and technology, to deploy these resources to advance sustainable development and growth.

As indicated above, biomass (biofuels, bioenergy and biogas) play a unique role in service to *New Wealth Industries*, the nation and a sustainable planet. In advancing biomass industries, there are three imperatives and one hopeful goal:

1. All biomass feedstocks must be grown in a fully-sustainable manner, protecting soil organisms, top soil and water while minimizing fossil inputs into the growing and harvesting processes;
2. The conversion of biomass feedstocks into fuels and energy (ethanol, methanol, biodiesel, biogas, hydrogen, electricity and thermal energy) must be done without environmental degradation while maximizing the efficiency of the processes and minimizing fossil inputs; and

3. The combustion of these fuels (or the use of the energy) should be accomplished in a way that maximizes efficiencies and minimizes harmful emissions.

The one hopeful goal is that:

- The value-added benefits from these industries (biorefineries) should accrue to areas near the natural resource and to the benefit of communities, co-ops and families.

This is not to say that major corporations, with their talents and resources, should not be encouraged to participate, but the "hopeful goal" should be kept in mind.

BIOMASS ENERGY AND BIOREFINERIES

As indicated at the outset, biomass energy systems and biorefineries are positioned to make major contributions to other NWI:

- The **extractive industries**: Biorefineries will need a huge amount of construction and operating equipment, the raw materials for much of which will come from these industries. The same is true of planting, harvesting and transporting the biomass. Maintaining the health of the soil requires large amounts of extracted minerals as does the processing of the biomass to make certain fuels. Biorefineries use energy, much of which, at least in the near term, will come from fossil, extracted sources. Further, reclaiming the land following surface extraction (strip mining) will involve planting biomass. And finally, successfully dealing with extractive wastes such as fines, limestone sludge and fly ash, will involve bioactivity and, most likely, biomass in some form.

- **Agriculture:** The bulk of the feedstocks servicing biorefineries will come from agriculture. As farmers turn to energy- and biochemical-feedstocks to better protect their land, to diversify their crops mix, to save water, and to improve income, they will transition, in part, to growing cellulosic biomass and herbaceous grasses.

- **Silvaculture**: Trees will play a critically important role in not only meeting the feedstock needs of biorefineries, but in better protecting the land and in providing wildlife habitats and appropriate recreation; most of which aids in stabilization of greenhouse gases.

- **Aquaculture**: Most fish and other aquatic species will be "farmed" on biomass oriented lands. In the future, the feed (protein, carbohydrates, vitamins, minerals, etc.) for these farms will likely come from biorefineries. Further, the quality of natural fisheries will be well served by more advanced agriculture and silvaculture practices that limit the loss of top soil and run-off of harmful chemicals.

- **Renewable energy:** Biorefineries should increasingly turn to renewable energy systems for electricity and process energy. In many cases, agriculture and silvaculture land can also support dual uses, such as wind, geothermal and solar. In fact, in several parts of the nation, biomass oriented land may be the best cites to develop these technologies;

- **Recycling and salvaging of materials**: In many cases, recycling and waste recovery will occur in biorefineries converting the biomass fraction of waste wood, cardboard, paper and other biomass into ethanol, methanol and/or biogas. Further, the plastic fraction of municipal wastes can be taken through biorefineries to make a host of fuels and/or biochemicals/petrochemicals.

  The technology to convert waste-water treatment plant sludge, limestone sludge, fly ash, kiln dust and other admixtures into a high quality fertilizer is already well developed (over 30 plants are fully operational). This fertilizer meets EPA "Exceptional Quality Sludge" criteria and can be used in the production of agriculture and silvaculture crops.

  Sanitary landfill gas, and biogases produced in anaerobic digesters processing manures and waste streams can be effectively used to generate electricity and thermal energy to meet the needs of biorefineries and other facilities. In the case of digesters, the residue is also a high-quality fertilizer.

- **Human creativity:** Effectively capturing the enormous power of this NWI, and applying its genius in support of biomass energy and biorefineries and the other NWI, will ensure the success of this combined concept to the benefit of the nation, its people and its environment.

RECOMMENDATIONS

1. That additional work be done on the material presented in this testimony so as to strengthen its delivery and to maximize the benefits of *New Wealth Industries* in meeting the pressing needs of the nation.

2. That the Department of Energy take the lead in developing concepts and policies to creatively advance *New Wealth Industries*, and that DOE solicit the support of USDA, EPA, DOI, and the Commerce Department in building a team that can interface with the involved industries and advocates.

SUMMARY

Back in the days before in door plumbing, there was a saying, "this problem is so knotty its like trying to clean out the outhouse -- you can't get to the source." Many Americans appear to see current problems in that light, and are losing faith in the ability of nation's basic institutions to solve pressing problems and are, consequently, looking elsewhere.

NWI, developed along the lines identified above, have the strength and ability to promote the dignity, vision and hope essential to restoring faith in the nation and its institutions. In short, *New Wealth Industries* can help get to the "source" of the nation's problems.

TUESDAY, MARCH 28, 1995.

ENERGY R&D

WITNESS

DR. ARDEN L. BEMENT, JR., BASIL S. TURNER DISTINGUISHED PROFESSOR OF ENGINEERING, DIRECTOR, MIDWEST SUPERCONDUCTIVITY CONSORTIUM

Mr. MYERS. Next we will hear from Dr. Bement, a member of the Midwest Superconductivity Consortium.

Mr. BEMENT. Thank you, Mr. Chairman and members of the subcommittee. I am Arden Bement, the Director of the Midwest Superconductivity Consortium, or MISCON. MISCON is a joint venture involving 6 leading universities and 14 industrial or national laboratory affiliates. The member universities include Purdue University, Indiana University, University of Notre Dame, the Ohio State University, and the University of Missouri, and the University of Nebraska.

MISCON has an affiliates program involving close working relationships between MISCON investigators and industry, and through this program MISCON provides direct scientific support in overcoming technological barriers to new product developments involving high temperature superconductors. Our 14 affiliates include both large corporations, such as IBM, TRW, and AT&T Bell Labs, and smaller high-tech companies such as Quantum Design, Superconductive Components, Incorporated, and Intermagnetics General Corporation.

Our affiliates are engaged in the commercialization of the superconductive systems and components for such important markets as medical instrumentation, telecommunications, electric power generation, and advanced computers. And just the superconductive part of this market is expected to grow six to tenfold in the next five years and about 40 percent of that will be export trade.

Letters of support from MISCON's affiliates and member universities are appended to my testimony.

MISCON measures its success on the basis of three criteria: National impacts of our research, technology transfers to industry, and collaborations with other research institutions around the world.

1994 was truly an outstanding year in all three categories. Research publications set new records with 83 peer review papers published, 19 more in process, and 37 more submitted for publication. The results of MISCON research were presented in 123 seminars and conference presentations. In addition, a new process was patented for producing tubular superconductive components that can shield sensitive instruments and electrical equipment from electromagnetic interference.

MISCON takes special interest in its education mission. Ten doctor of philosophy degrees, three master degrees, and two B.S. Degrees were granted in 1994 to students working on MISCON projects. MISCON graduates continue to be in high demand in both academia and industry. More than half our graduates last year went to industry. Therefore, we believe that we are fulfilling one of our goals; namely, providing a continuing supply of highly educated engineers and scientists to this important field.

Since the formation of MISCON, we have emphasized collaborations with other institutions working in this field. Such collaborations not only transfer technology but also leverage our capabilities and productivity. Last year our investigators engaged in a record 79 separate collaborations with industry, universities, and national laboratories around the world.

In accordance with MISCON policies, all four year projects and all new projects are reviewed by an independent panel of peers. Last year this review was conducted by 10 outstanding experts in the field. As a result of this review, five projects were renewed, four new projects were initiated, and two projects were phased out. These reviews help us maintain a high level of quality in our program.

Our objectives for fiscal year 1996 is to maintain our current level of effort, to increase the linkages with the University of Nebraska, our newest member, and to continue strengthening the technological impact of our research through joint projects with industry. Therefore, our request for fiscal year 1996 is the same as for fiscal year 1995, $3.7 million.

Mr. Chairman, members of the subcommittee, I appreciate the opportunity to testify. I also very much appreciate the subcommittee's support to MISCON over the past five years. We believe this has resulted in major contributions to national goals for the strategic technology.

Thank you for allowing me to testify, and I will answer any questions the subcommittee may have.

Mr. MYERS. Well, thank you, Dr. Bement. Your entire statement will be placed in the record.

Mr. BEMENT. Thank you very much.

Mr. MYERS. Thank you for your testimony.

Mr. BEVILL. Nice to see you.

[The statement of Mr. Bement follows:]

MIDWEST SUPERCONDUCTIVITY CONSORTIUM
Physics Bldg., Purdue University
West Lafayette, IN 47907
(317)494-5567

Testimony Before the

ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE ON APPROPRIATIONS

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

March 28, 1995

Summary of Request: The Midwest Superconductivity Consortium supports competitive projects coupling Midwest universities with industry in research on applications of high temperature superconductor materials. The Consortium requests $3.7 million in FY 1996 to sustain the quality and productivity of current activities and to further strengthen industry joint developments in 1995 and 1996.

Dr. Arden L. Bement, Director
Midwest Superconductivity Consortium

Mr. Chairman and members of the Subcommittee, my name is Arden Bement and I am the Director of the Midwest Superconductivity Consortium (MISCON), a cooperative endeavor among six leading academic institutions and the private sector. I am appearing before you today on behalf of the Consortium to report on the progress of the Consortium over the past year and to request continuing support for Fiscal Year 1996.

Membership of this six-member Consortium includes Purdue University, Indiana University, University of Notre Dame, The Ohio State University, The University of Missouri, and The University of Nebraska. The basic mission of the Consortium is to advance the science and understanding of high-T_C superconductivity and to promote the development of both new materials and improved processing technologies for the commercialization of superconductivity. Focused group efforts, resource sharing and close industry affiliations are key characteristics of the Consortium. The goals of the Consortium are:

a. to develop, utilizing effective group efforts, the scientific and technology foundation for industrial applications and commercialization of high-temperature superconductivity;
b. to facilitate the transfer of technology from the Consortium research laboratories into industry; and
c. to ensure that there is a continuing supply of engineers and scientists trained in this important field.

The programmatic research continues to focus upon key materials related problems in two areas. The first area has a focus upon the **synthesis** and **processing** of high-T_C superconducting materials. The second area focuses on understanding limiting features in the electrical **transport properties** of these materials. Solutions to these problems are essential to industrial developments of components and systems using high-temperature superconductors and to the transport of very high electrical current densities over a range of magnetic fields required of these components and systems.

The two focus areas of research involve twenty-seven (27) research projects, thirty-seven (37) principal investigators, fifty-eight (58) graduate students, nine (9) postdoctoral associates, and ten (10) undergraduate students. MISCON employs three types of measurements of programmatic success:

1. National impact: such as significant scientific achievements, degrees granted, and publications in peer reviewed journals,
2. Technology transfers: such as affiliations, visits and other specific interactions that support significant technological developments,
3. Collaborations: such as joint research, exchanges, seminars, and shared use of special MISCON instrumentation.

Substantial achievements were made in all three categories during the past year, making 1994 the most outstanding year yet under the consortium. I would like to highlight the accomplishments in the remainder of my testimony.

Research results under MISCON in the past year were published in eighty-three (83) peer reviewed papers, with nineteen (19) more in press and thirty-seven (37) more submitted for publication, making 1994 the highest publication year in the history of the consortium. Furthermore, the participants gave over one hundred twenty-three (123) talks or conference presentations.

MISCON takes special interest in its education mission **to ensure that there is a continuing supply of engineers and scientists trained in this important field.** Ten (10) Doctor of Philosophy degrees, three (3) Master's degrees and two (2) B.S. degrees were granted during the past year to students working on MISCON projects. Notably, the production of Ph.D. talent in 1994 was twice that in 1993 and 60% of the total production under the consortium to date. MISCON graduates continue to be in demand by industry and academia. Of the 1994 graduates, four (4) were employed by industry, five (5) received academic appointments, three (3) are pursuing post-doctorate training, and the remaining four (3) are either continuing their graduate education or seeking academic appointments.

Since the beginning of the program, MISCON has promoted collaborations not only among MISCON investigators but also with investigators in industry, national laboratories, and other universities. Of interest in these collaborations is not only developing and transferring technology but also leveraging research capabilities and productivity within MISCON. These collaborations continued to grow. During the past year alone, MISCON investigators were involved in two (2) MISCON group meetings; a MISCON Summer School on "The Synthesis, Processing and Analysis of High Temperature Superconductors"; seventy-nine (79) collaborations with industry, universities and national laboratories; and forty-eight (48) exchanges of samples and measurements.

In order to establish stronger links with industry, MISCON has an affiliates program based on formal, sustained collaborative efforts agreed to by both parties (not fees). Affiliations, technology transfer activities and equipment access agreements were expanded during the year. The number of actively participating affiliates increased to fourteen (14) with the addition of **HYPRES, Inc.** (Elmsford, NY), **Keithley Instrument Co.** (Solon, OH), and **Wright Patterson AFB** (Dayton, OH). The other eleven (11) affiliates are: **Advanced Technology Materials, Inc.** (Danbury, CT), **AT&T Bell Labs** (Murray Hill, NJ), **IBM Thomas J. Watson Research Center** (Yorktown Heights, NY), **Intermagnetics General Corp.** (Guilderland, NY), **Lake Shore Cryotronics, Inc.** (Westerville, OH), **the National Institute of Standards and Technology** (Gaithersburg, MD and Boulder, CO), **Quantum Magnetics** and **Quantum Design** (San Diego, CA), **Ribbon Technology Corp.** (Gahanna, OH), **Superconductive Components, Inc.** (Columbus, OH), **TRW, Inc.** (Redondo Beach, CA) and **The Weizmann Institute of Science** (Rehovot, Israel).

Examples of joint projects with affiliates are: (1) a project to automate magnetic property measurements between Purdue University and Quantum Design and (2) a project between Notre Dame University and Superconductive Components, Inc. to develop a high temperature superconductor with superior properties for magnetic bearing applications. In addition, Purdue University is seeking industry partners for a newly patented process developed under MISCON for producing tubular superconductive tubes to shield sensitive electronic equipment from electromagnetic interference. These interactions keep all participants aware of industry's needs for new knowledge and the current state of commercial technology in high-T_c superconductivity and provide high leverage in introducing MISCON-developed technologies into the marketplace.

MISCON contributed important new materials processing technologies and new understandings of transport behavior in high-T_C superconductors. The following ten "first-time" achievements exemplify the twenty-one (21) identified as "highly significant" in 1994:

- A.E. Miller and S. Bandyopadhyay, University of Notre Dame, **demonstrated that a periodic array of Pb quantum dots exhibits quantum confinement.**
- M.W. McElfresh and E.P. Kvam, Purdue University, **showed that the theoretically-predicted dimensional crossover field sensitively depends on the crystallographic anisotropy of YBCO.**
- J.M. Honig and J. Spalek, Purdue University, **developed a theoretical model that predicts the change in transition temperature with the number of conducting planes.**
- J. Betanabhatla and J.R. Hardy, University of Nebraska, and R.R. Berliner, University of Missouri, **discovered superconductivity for the first time in a barium bismuth oxide phase.**
- K.P. Trumble, K.J. Bowman and M.W. McElfresh, Purdue University, **filed for a patent on silver-clad BSCCO tubes produced by centrifugal slip casting for magnetic shielding applications.**
- Charles Pennington, The Ohio State University, **confirmed by NMR measurements that the vortex system in single-crystal YBCO is in the "liquid" state within the resistive transition temperature region.**
- P.J. McGinn, University of Notre Dame, and K.H. Sandhage, The Ohio State University, **developed a process for melt-texturing laminated YBCO/AgPd conductor tapes with excellent ductility and current density without melting the Ag-Pd noble metal alloy.**
- G. Lafyatis, The Ohio State University, **demonstrated by his direct atomic beam probe that the vortex lattice in Nb films conforms to a hexatic lattice.**
- T.R. Lemberger, The Ohio State University, **showed conclusively that dopants increase the penetration depth in YBCO films without affecting its temperature dependence.**
- D.V. Baxter, K.G. Caulton and M.H. Chisholm, Indiana University, **successfully synthesized a molecular precursor for the CVD processing of YBCO having the correct yttrium:barium stoichiometry.**

In accordance with MISCON policy, all fourth-year projects and all new proposals are reviewed by an independent external peer review panel. The 1994 peer review was conducted by ten (10) outstanding experts in the field of high-T_C superconductivity. Project decisions were then based on the results of this peer review. Prior to the review, two existing projects were withdrawn: for one, the goals had been completed and the other was reconstituted as a new proposal. Consequently, five fourth-year projects and nine new proposals were submitted to this outside panel for review. As a result of the panel's review, the five ongoing projects were renewed and four of the new proposals were funded at a reduced level for the first year for a combined total of $379,071 for new starts. The peer review scoring is based on the NSF method which scores according to "excellent", "very good", "good", and "reject". The average score of all projects, as determined by the expert reviewers, is near the midpoint between "excellent" and "very good".

MISCON was appropriated $3.7 million in FY 1995. This level of funding will enable new project starts that have very high merit within the Consortium, additional outreach activities with industrial affiliates, and project support for the University of Nebraska, the newest member of the Consortium (added in 1994).

We are again requesting $3.7 million for FY 1996 to sustain the productivity, quality and effectiveness of the consortium and its outreach to industry.

We appreciate the support of the Subcommittee and look forward to continued progress towards the utilization of these new and exciting materials. Thank you, Mr. Chairman, for the opportunity to testify. I'll be happy to answer any questions you have.

LETTERS OF SUPPORT

State of Indiana
Frank O'Bannon, Lt. Governor

MEMBERS:

Indiana University
University of Missouri
University of Nebraska
University of Notre Dame
Ohio State University
Purdue University

AFFILIATES:

AT&T Bell Laboratories
HYPRES, Inc.
IBM
Keithley Instruments, Inc.
Lake Shore Cryotronics, Inc.
Quantum Design, Inc.
Superconductive Components, Inc.
TRW Superconductivity Research

1816

STATE OF INDIANA
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FRANK O'BANNON
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March 9, 1995

Mr. Arden L. Bement, Jr.
Director
Midwest Superconductivity Consortium
Purdue University
1125 Physics Building
West Lafayette, IN 47907

Dear Mr. Bement,

Thank you for sending me a copy of the 1994 Progress Report for the Midwest Superconductivity Consortium. It is good to see universities and corporations in our Midwest Region cooperating on this project. You have my best wishes for continued success as you move forward with your work.

Sincerely,

Frank O'Bannon

Frank O'Bannon
Lieutenant Governor

FOB:cc

INDIANA UNIVERSITY

THE PRESIDENT'S
OFFICE

March 10, 1995

The Honorable John T. Myers
Chairman, Subcommittee on Energy
and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, D.C. 20515

Dear John:

I am pleased to write in support of the continued funding in FY 1996 for the Midwest Superconductivity Consortium (MISCON) by the House Appropriations Subcommittee on Energy and Water Development.

MISCON is a leader in research and development of high temperature superconductivity technology, and promotes collaborations among engineers and scientists in industry, national laboratories, and other universities. Its work highlights the value of research partnerships between universities and industry for the advancement of science and technology.

A goal MISCON is to contribute to the national economy by facilitating the transfer of technology from research laboratories to industry. Moreover, the commercialization of the technology promises significant global trade advantages. For these reasons research and development in superconductivity is consistent with our nation's interest.

The projects at MISCON undergo rigorous peer review by independent experts from academic institutions, industry, and federal laboratories. This review process ensures that technologically sound projects of high potential are conducted by MISCON. The work carried out by MISCON has a high potential for contributing to a strong economy in the midwest, and to competitive advantages for the United States in the global marketplace.

I urge you to give positive consideration to the continued funding of MISCON.

Sincerely yours,

Myles Brand
President

Bryan Hall 200
Bloomington, Indiana
47405-1201

812-855-4613
Fax: 812-855-9586

UNIVERSITY OF MISSOURI SYSTEM Columbia • Kansas City • Rolla • St. Louis
OFFICE OF THE PRESIDENT 321 University Hall Columbia, MO 65211 Telephone (314) 882-2011

February 17, 1995

The Honorable John T. Myers, Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Congressman Myers:

On behalf of the University of Missouri, I am pleased to express my support for the important effort of the Midwest Superconductivity Consortium. This program provides valuable support for leading edge research which contributes significantly to the advancement of science in close cooperation with industries seeking applications of high temperature superconductor materials.

Sincerely,

George A. Russell

George A. Russell
President

University of
Nebraska
Office of the President

Varner Hall
3835 Holdrege
P.O. Box 830745
Lincoln, NE 68583-0745
(402) 472-2111
FAX (402) 472-1237

March 7, 1995

The Honorable John T. Meyers
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2302 Rayburn House Office Building
Washington, D.C. 20515-0114

Dear Chairman Meyers:

On behalf of the University of Nebraska, I am writing to express support for the activities of the Midwest Superconductivity Consortium ("MISCON").

The University of Nebraska is the newest member of MISCON, and I have recently become familiar with the important work of this consortium. The kind of research conducted by faculty at the six participating Universities is critical to efforts by the United States to be a leader in the development and commercializaton of high-temperature superconductivity. MISCON provides a successful model for a collaborative approach by industry, universities and the government.

MISCON is a government investment that offers positive and substantial returns, and I hope that your Subcommittee will continue to support its activities.

Sincerely,

L.D. Smith

L. Dennis Smith
President

cjb

University of Nebraska–Lincoln   University of Nebraska Medical Center   University of Nebraska at Omaha   University of Nebraska at Kearney

OFFICE OF THE PRESIDENT

PHONE 219/631-6755
FAX 219/631-7428

UNIVERSITY OF NOTRE DAME
NOTRE DAME, INDIANA 46556

February 16, 1995

Chairman John T. Myers
Subcommittee on Energy and
Water Development
House committee on Appropriations
2372 Rayburn House Building
Washington, D.C. 20515

Dear Congressman Myers:

In order to revitalize the United States economy it will take the collective efforts of every sector of our society. No single sector can achieve the success that the combined efforts will achieve. Government, industry, and the academic communities must each respond to the challenges with all of the talents and resources that are available to them.

The Midwest Superconductivity Consortium (MISCON), is one example of how six regional universities have joined together with industry and government to support an important, emerging technology area. The focus of MISCON is to develop the science and technology of high-temperature superconductors, facilitate the transfer of these technologies to industry, and, perhaps most important, educate the next generation of men and women needed to continue progress in this technology.

The MISCON Director, Dr. Arden L. Bement, Jr., has the opportunity to give testimony before your Committee on the details of the Consortium's recent activities. As you will see from Dr. Bement's remarks, it has been a busy and productive time for MISCON. We look forward to an even more successful future.

Cordially,

Edward A. Malloy,

(Rev.) Edward A. Malloy, C.S.C.
President

THE OHIO STATE UNIVERSITY

Office of the President

205 Bricker Hall
190 North Oval Mall
Columbus, OH 43210-1357

Phone 614-292-2424

March 9, 1995

The Honorable John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Myers:

I am writing to express our continued support for the research activities of the Midwest Superconductivity Consortium. We must stimulate new technologies to develop competitive industries. And we must continue to invest in the basic research that has made America a leader in science and technology. We believe that the Consortium contributes significantly to both these goals.

By strengthening superconductivity research, the Consortium represents an investment and a collaboration in the best sense. It has provided critical funds for research projects and has advanced the training of students in this important field. Further, the interactions that have developed among faculty and students from various universities and industry researchers are a model for university industry collaborators. These partnerships will help us successfully explore new frontiers that will contribute to the nation's economic prosperity and competitiveness.

The investment in MISCON is an investment in our country's future. We encourage continued federal funding for this important initiative.

Sincerely,

E. Gordon Gee

E. Gordon Gee

sc

PURDUE UNIVERSITY

STEVEN C. BEERING
PRESIDENT

February 15, 1995

Chairman John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear John,

On behalf of Purdue University, I would again like to express support for the activities of the Midwest Superconductivity Consortium. We all recognize the tremendous potential that superconductivity could have in providing solutions to many current technological problems. To advance this technology, a necessary step is to understand the phenomena so that one could manufacture desired components for applications.

The complexity of the problems to be solved make it fruitful for cooperative activities among a wide range of interested parties. Such an approach indicates focused group efforts and the sharing of resources is necessary for the development of the scientific and technological foundation for the commercialization of high-temperature superconductivity. Further, the integration of the research work of the universities with the application needs of industry can facilitate technology transfer. In the international market of today, this coordination of efforts is a vital factor in success.

This Consortium brings to bear these multiple efforts to seek solutions for the future, and we at Purdue University are proud to be a part of the activities. With your continued support, we look forward to success in our goal to promote the applications of these exciting new materials. Purdue University plays a pivotal role in this Consortium, and it has the full backing of my office.

Sincerely,

Steve

1031 HOVDE HALL, ROOM 200 • WEST LAFAYETTE, IN 47907-1031 • (317) 494-9708

AT&T
Bell Laboratories

600 Mountain Avenue
P.O. Box 636
Murray Hill, NJ 07974-0636
908-582-3000

D. J. Bishop
room 1D-231
phone (908) 582-3927
fax (908) 582-3260
email djb@physics.att.com

February 13, 1995

Chairman John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Mr. Myers,

I am writing in support of the Midwest Superconductivity Consortium and its continued funding. The field of superconductivity is an area in which there are many potentially important technologies to be developed and with significant payoffs to those who persevere in its study. At the moment, the United States is in a position to compete effectively with a number of other countries which have invested heavily in this developing technology. If we fail to continue to support long term, high quality work in this area, we will not be in a position to capitalize on the investments we have already made and we will once again be in a situation in which we lead the world in papers on a subject and lag in making products with the technology because we have exited too soon.

Any new technology takes a long time to develop. High Tc superconductivity is an especially complicated problem and the likelihood of short term economic success is small. However, long term economic success is inevitable for those who hang tough. In this country, we tend to fund scientific development with the expectation that the payoffs will come in a short time. For a variety of reasons, we very seldom take the long term point of view. Perhaps it is because our political system presently does not reward that kind of long term thinking. In any case this attitude is very bad for basic science which by definition requires that one take the long view. It took approximately twenty years for transistors to become ubiquitous after their discovery. The materials problems with the High Tc superconductors are very much harder than with those encountered with the early semiconductors. It is reasonable to expect at least as long as a lead time in the development of this new superconducting technology as was the case for the semiconducting technology. It is important that we fund this technology at a reasonable and modest level for a long period of time and not dump vast amounts in at the beginning and then exit after five years in frustration. We in this country are more inclined to behave in this latter way.

I support continued funding for the Midwest Superconductivity Consortium. In general, the work funded by this consortium has been of a high quality, important to the intellectual community which is trying to solve these problems and significantly helps speed the day in which products using this technology will be available. American, high tech industries are finding it increasingly difficult to fund the forward looking work which is needed to guarantee their long term ability to compete in the international marketplace. That work and the job of training students, their future employees, must be done by American universities. Work in this area must continue to be supported at a level which maintains intellectual critical mass. As an employee of a high tech company which may potentially benefit from this work and a scientist committed to helping to solve these problems, I urge you to continue funding for the Midwest Superconductivity Consortium.

Sincerely,

D. J. Bishop

HYPRES, Inc.
Making Superconducting Electronics a Reality

Corporate Offices
175 Clearbrook Road
Elmsford NY 10523

(914) 592 1190
Fax (914) 347 2239

February 21, 1995

The Honorable John T. Myers, Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Mr. Myers:

I am writing in support of the Midwest Superconductivity Consortium's (MISCON) program in Superconductivity Research. The benefits of this consortium extend nationwide. Recognizing the importance of these benefits, HYPRES - located in the State of New York - has decided to join MISCON as a corporate affiliate in 1994. HYPRES' initial collaboration with Dr. Ruggiero of the University of Notre Dame will focus on the physical properties of thin film materials for high performance electronics applications. These applications include advanced technologies for high performance communications networks. The work of the consortium establishes important and sound scientific foundations for progress in Superconductivity. This foundation is essential to progress in the field. Importantly, MISCON's activities accelerate the commercialization of Superconductivity Research, contributing to American competitiveness in this global economy.

Thank you for your consideration of this matter.

Very truly yours,

Elie K. Track
President and CEO

IBM

International Business Machines Corporation

Stuart Bermon
Thomas J. Watson Research Center
P.O. Box 218
Yorktown Heights, New York 10598

March 7, 1995

The Honorable John T. Myers
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Office Building
Washington, DC 20515

Dear Mr. Myers:

This letter is to express my support for continued funding of the Midwest Superconductivity Consortium (MISCON). Professor M. McElfresh at Purdue University and myself have been collaborating on the study the magnetic shielding capabilities of high temperature superconductors. This grew out of a shielding studies project in the IBM Research Division in which Dr. McElfresh participated during the time he was at our laboratory. Magnetic shielding is an important component of many superconducting systems, particularly those incorporating superconducting quantum interference devices (SQUID's) for the detection of minute changes in magnetic fields. IBM continues to maintain a significant research program in this area as well as in the general electrical properties of high-temperature superconducting materials. Current interests include building SQUID based devices for detecting the presence of submarines, and a joint venture with Quantum Devices, Inc., for which good magneitc shielding is particularly important, i.e. the detection of explosives and illegal drugs using electric quadrapole resonance. An additional SQUID project with Quantum Devices involves monitoring magnetic fields of the heart. Previously, our efforts in the area of shielding had concentrated on uses at low temperature. Our goal is to expand our understanding to include high temperature superconductors, where the potential applications are much more plentiful. We have provided equipment for the research effort at Purdue University and are providing consultation on experimental design, measurement techniques and interpretation of data. Cylindrical shields of high-Tc material have already been fabricated at Purdue University using centrifugal casting and are presently undergoing testing. We here at the Research Division consider the work at MISCON an important adjunct to our own and feel that it is vital for it to proceed.

Sincerely,

Stuart Bermon

Stuart Bermon, Ph.D

KEITHLEY

Joseph P. Keithley
Chairman, President and CEO

March 1, 1995

The Honorable John T. Myers,
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Congressman Myers:

We are a leading manufacturer of test and measurement equipment, with a focus on emerging high technology needs of research and industry. An area that we see as growing in the future, both in research and in industry, is superconducting materials and devices. We presently make test equipment for this area and work with partners such as MISCON on developing new measurement methods and equipment to characterize superconducting materials and devices.

If the United States is to remain the leader in this field, it is essential that we have organizations such as MISCON who bring together the talents of many institutions in a geographical region and work with industry to commercialize products related to the field. Without such organizations, it will not be practical for industry alone to develop the materials, processes, and testing methods to commercialize superconducting devices.

We urge the Subcommittee on Energy and Water Development of the House Committee on Appropriations to continue funding MISCON in FY1996. This will provide the technology needed to put the US in a leadership position, and provide industry with the needed information and basic research to justify commercializing products in this field.

Sincerely,

Joseph P. Keithley

Joseph P. Keithley

Keithley Instruments, Inc./28775 Aurora Road/Cleveland, Ohio 44139-1891/(216) 498-2684/FAX: (216) 248-6168

Feb. 28, 1995

John T. Myers, Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Mr. Myers:

Lake Shore is a world leader in the manufacture and sale of instrumentation used in low temperature materials research. Our company has been affiliated with the Midwest Superconductivity Consortium (MISCON) since 1993. It is our belief that organizations such as MISCON are requisite to this countries continued global competitiveness in high temperature superconductivity research. The eventual commercialization of viable applications of these pivotal materials will be realized as a direct result of the efforts of consortia like MISCON.

The work of MISCON cannot effectively continue, however, without continued financial support secured through the House Appropriation Committee's Subcommittee on Energy and Water Development. We ask the committee to continue funding for FY 1996 the MISCON program so that it may advance its' mission, and thus insure a significant US role in the commercial potential for superconducting materials.

Sincerely yours,

B. C. Dodrill
Research Scientist, Systems Division
Lake Shore Cryotronics, Inc.
64 E. Walnut St.
Westerville, OH 43081

LakeShore
Measurement and Control Technologies

Lake Shore Cryotronics,Inc.
64 East Walnut Street ● Westerville, Ohio 43081-2399
Fax: (614) 891-1392 ● **Tel: (614) 891-2243**

QUANTUM
DESIGN

March 7, 1995

The Honorable John T. Myers
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Sir:

I write this letter in support of the concept of MISCON and the high level of quality research that is currently being carried out by the members of this consortium. The type of technology transfer opportunities such organizations make available to U.S. industry enhances the competitive advantage of a traditional strength of this country. That is, the superior caliber of basic research done in our private and state-supported university systems.

As a member of the MISCON Industrial Affiliates Program, scientists at Quantum established a close working relationship with researchers in the Physics Department at Purdue University. Technically, our collaborative work has centered around the improvement of commercial instrumentation and test equipment using superconducting techniques. This has included developing a source in the United States for state-of-the-art electromagnetic shielding that will improve the quality of instrumentation in many fields, from medicine to manufacturing. In addition, there are new, high-resolution measurement techniques being developed by members of the MISCON team. There is at least one project (Hall Sensor Arrays) that could represent a commercial opportunity for a company like Quantum Design.

The fundamental materials science that must be learned in the early stages of these projects would otherwise put this expensive undertaking out of reach for our company. Quantum's association with MISCON provides access to the latest findings in academic research, at some of this country's premier educational institutions.

We fully appreciate the collaboration and technical input from our MISCON colleagues at Purdue, and hope that we will have the opportunity to continue this fruitful relationship.

Sincerely,

QUANTUM DESIGN, INC.

W. Barry Lindgren
President

11578 Sorrento Valley Road
San Diego, California 92121
(619) 481-4400 FAX: (619) 481-7410

SUPERCONDUCTIVE Components, Inc.
Phone: (614) 486-0261 • 1145 Chesapeake Avenue • Columbus, Ohio 43212 • Fax: (614) 486-0912

March 4, 1995

Chairman John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Honorable Mr. Myers,

I am writing to ask your continued support of the Midwest Superconductivity Consortium (MISCON) under the leadership of Dr. Arden L. Bement, Jr., Director.

Superconductive Components, Inc. is working on energy storage using the concept of Frictionless Flywheels, which are made possible by superconducting levitation. Although the principle of flywheel energy storage has been known for a long time, the concept of levitation using the high temperature superconductors is new, and is based on technical breakthroughs accomplished at Argonne National Laboratories, and, is being commercially developed by us. The possibilities of storing energy efficiently and economically are very large.

The MISCON group is an important adjunct in helping us pursue our concept of Frictionless Flywheel Energy Storage (FFES). We are a member of this group, and MISCON has also funded on a modest scale, work we are doing that is important to FFES.

I therefore ask your continued support of MISCON.

Respectfully,

Edw. R. Funk
Edward R. Funk, President

TRW

TRW Space & Electronics Group

One Space Park
Redondo Beach, CA 90278
310.812.4321

February 28, 1995
95.D351.AHS-001

The Honorable John T. Myers
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Raybum House Building
Washington, DC 20515

Dear Sir:

I am writing in support of the MISCON research program on superconductivity, and its value to TRW's research and development efforts to apply superconductive electronics to national priorities in space, defense, and global competitiveness. We have benefited from working relationships between our scientists and Drs. Tomasch and Moser at the University of Notre Dame on the microwave properties of high temperature superconductor films, which are critical to the manufacture and commercialization of high temperature superconductors. We believe that this type of collaborative research will provide greater understanding of the conditions which favor the manufacture of quality Josephson junctions, the basic logic element required for computer applications.

We look forward to continuing and expanding our technical collaborations with the researchers at the MISCON universities.

Very truly yours,

AH Silver

Amold H. Silver
Chief Scientist for Superconductivity
Electronics Systems and Technology Division

TRW Inc

TUESDAY, MARCH 28, 1995.

POWER MARKETING ADMINISTRATION

WITNESS

RONALD K. GREENHALGH, CHIEF ENGINEER, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION, AND REPRESENTING THE MIDWEST ELECTRIC CONSUMER ASSOCIATION

Mr. MYERS. Next, the committee will be pleased to hear Ronald Greenhalgh, Chief Engineer with the Rural Electric Cooperative Association, representing the Midwest Electric Consumer Association.

Mr. Greenhalgh, your entire statement will be placed in the record and you may proceed as you would like for five minutes.

Mr. GREENHALGH. Thank you, Mr. Chairman. It is always a great pleasure to appear before this committee. In this era of change, it is nice to come up and see so many familiar faces. And as I look around and about, the only physical evidence of change is the size of the Chairman's chair. Everything else is about the same.

Mr. MYERS. You heard about that.

Mr. GREENHALGH. We try to pay attention.

Mr. MYERS. Please proceed.

Mr. GREENHALGH. NRECA is the National Rural Electric Cooperative Association, with over a thousand electric power systems which supply central station electricity to more than 25 million people in the rural areas of 46 States. About two-thirds of these systems purchase electric power which is generated by the Corps of Engineers and the Bureau of Reclamation and is marketed wholesale by various Federal power marketing administrations.

The rural electric systems have relatively few customers per mile of transmission and distribution line. These systems and their fragile rural economies they serve depend on the continued availability of the Federal resources at stable rate levels that are based only on the actual Federal cost of generation and marketing.

At our fifty-third annual meeting in Orlando, Florida last month over 12,000 members attended and again unanimously passed resolutions supporting appropriations for energy and water resource projects throughout the United States. Therefore, assuming that the administration's request levels are sufficient to allow the Federal agencies to continue to operate efficiently and reliably, NRECA supports the administration's fiscal year 1996 appropriations request for the Army Corps of Engineers, the Bureau of Reclamation, the Department of Energy's PMAs, and other DOE energy programs, including continuing, at a minimum, funding levels provided for nuclear R&D and civilian nuclear waste management in the Energy and Water Development Appropriations Act of 1995.

Each year we have appeared before this subcommittee and thanked you for your continued insistence that power marketing administration divestiture and repayment methodology decisions are to be made by the Congress and not arbitrarily and unilaterally made by administrative fiat. Unfortunately, however, the administration continues to seek ways to offset domestic discretionary budget authority at the expense of the Federal power ratepayers.

The administration's proposal to sell the Southeastern, Southwestern, and Western Area Power Administrations is such an attempt. That proposal is contrary to this subcommittee's long-standing basic principle that retention of Federal power marketing facilities and functions is in the public interest.

Any use of Federal funding to perform studies to implement this proposal would violate Section 208 of the Urgent Supplemental Appropriations Act of 1986, a law that originated in this subcommittee. NRECA strongly opposes the sale of those three PMAs and the Bonneville Power Administration and asks the subcommittee to reject any request for funding to study or implement the Administration's sales proposal.

NRECA does not oppose the proposal to sell the Alaska Power Administration as long as such sale is in accordance with existing sales agreements. However, we urge the subcommittee to continue to provide funding for the Alaska Power Administration on a business-as-usual basis until sales provisions are enacted.

NRECA supports the traditional funding of planning, environmental, and feasibility studies and authorization and appropriation of funds to construct all feasible multipurpose projects as rapidly as practical and to also install and operate electric generation in all existing projects where feasible, consistent with Federal preference laws. Accordingly, we believe Congress should appropriate any additional funds necessary to complete the studies of facilities that would be upgraded as authorized in Title 24 of the Energy Policy Act of 1992.

NRECA supports the budget request for operation and maintenance of existing facilities. Adequate O&M of projects remains a high priority in order to meet contractual commitments for delivering water and power benefits to consumers. Hydroelectric power plants provide a clean and renewal source of power, making the Nation less dependent on fossil fuels as a source of energy.

We support the Bureau of Reclamation's plans to use $11.3 million from the Central Valley Project Restoration Fund to finance continued construction of the Shasta temperature control device. Construction of the temperature control device in the reservoir at Shasta Dam, which could greatly aid anadromous fishery migrations in the Sacramento River, including the winter run chinook salmon. Expensive cold water releases that bypass the power generators can be stopped when the temperature control device is placed in service. Therefore, work on the device should be expedited so the cost savings could be achieved.

Although the administration did not propose any new or higher waterway user taxes for 1996, NRECA continues to oppose any such proposals and asks the subcommittee to reject them if they arise.

The NRECA membership has resolved to support nuclear power and nuclear research programs. Funds to continue development of advanced nuclear technology are essential for maintenance of a viable nuclear industry.

We commend the Congress and the Department of Energy for their insight in establishing these important programs and urge you to continue your support for funding in fiscal year 1996. These programs will reestablish the nuclear option in the United States by restoring utility and industry confidence in the nuclear market and solidifying leadership in an expanding international market while helping to meet the energy needs forecast for our Nation and the world.

We have other requests that are contained in the full statement, Mr. Chairman. I thank the subcommittee for the opportunity to present this testimony on behalf of NRECA and Midwest and I would be happy to answer any questions.

Mr. MYERS. Thank you for your testimony again. Always good to see you every year.

[The statement of Mr. Greenhalgh follows:]

STATEMENT OF NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION ON F.Y. 1996 APPROPRIATIONS BEFORE THE ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

MARCH 28, 1995

Mr. Chairman, my name is Ron Greenhalgh, Chief Engineer of the National Rural Electric Cooperative Association (NRECA). NRECA is the national association of over 1000 electric power systems which supply central station electricity to more than 25 million people in the rural areas of 46 states. About two-thirds of these systems purchase electric power which is generated by the Corps of Engineers and the Bureau of Reclamation and is marketed at wholesale by the various federal power marketing administrations. The rural electric systems have relatively few customers per mile of transmission and distribution line. These systems, and the fragile rural economies that they serve, depend on the continued availability of the federal resources at stable rate levels that are based only on the actual federal costs of generation and marketing.

At our 53rd annual meeting in Orlando, Florida, in February 1995, our members again unanimously passed resolutions supporting appropriations for energy and water resource projects throughout the United States. Therefore, assuming that the Administration's request levels are sufficient to allow the federal agencies to continue to operate efficiently and reliably, NRECA supports the Administration's FY 1996 appropriations requests for the Army Corps of Engineers, $3.32 billion; Bureau of Reclamation, $746.8 million; Department of Energy's PMAs, $4.3 million in new appropriations for the Alaska Power Administration, $19.8 million in new appropriations for the Southeastern Power Administration, $30.3 million in new appropriations for the Southwestern Power Administration, $310.9 million in new appropriations for the Western Area Power Administration, and $107.6 million in new borrowing authority for the Bonneville Power Administration; and other DOE energy programs, including continuing, at a minimum, funding levels provided for nuclear R&D and civilian nuclear waste management in the Energy and Water Development Appropriations Act, 1995.

Each year we have appeared before this Subcommittee and thanked you for your continued insistence that power marketing administration divestiture and repayment methodology decisions are to be made by the Congress and not arbitrarily and unilaterally made by administrative fiat. Unfortunately, however, the Administration continues to seek ways to offset domestic discretionary budget authority at the expense of the federal power ratepayers.

The Administration's proposal to sell the Southeastern, Southwestern, and Western Area Power Administrations is such an attempt. That proposal is contrary to this Subcommittee's long-standing basic principle that retention of federal power marketing facilities and functions is in the public interest. Any use of federal funding to perform studies to implement this proposal would violate section 208 of the Urgent Supplemental Appropriations Act of 1986, a law that originated in this Subcommittee. NRECA strongly opposes the sale of those three PMAs and the Bonneville Power Administration and asks the Subcommittee to reject any requests for funding to study or implement the Administration's sales proposal.

NRECA does not oppose the proposal to sell the Alaska Power Administration as long as such sale is in accordance with existing sales agreements. However, we urge the Subcommittee to continue to provide funding for the Alaska Power Administration on a "business as usual" basis until sales provisions are enacted.

NRECA supports the traditional funding of planning, environmental, and feasibility studies, and authorization and appropriation of funds to construct all feasible multi-purpose projects as rapidly as practical and to also install and uprate electric generation in all existing projects where feasible, consistant with federal preference laws. Accordingly, we believe Congress should appropriate any additional funds necessary to complete the studies of facilities that could be uprated, as authorized in Title 24 of the Energy Policy Act of 1992.

FEDERAL POWER MARKETING ADMINISTRATIONS

PMA Staffing Authority - NRECA also continues to support the power marketing administrators' use of the staffing authority provided in the FY 1991 Energy and Water Development Appropriations Act. As CEOs of operating electric utilities, the PMA administrators should be permitted to employ the staff they believe necessary to operate their respective power systems cost-effectively for the benefit of their rate-paying customers. The Subcommittee should be assured that the PMA customers who defray all PMA staffing costs through power rates will pay close attention to such costs. We oppose any effort to reduce arbitrarily PMA staffing ceilings below the levels the administrators believe necessary to accomplish their mission of providing reliable electric service.

CORPS OF ENGINEERS AND BUREAU OF RECLAMATION

Operations and Maintenance Program - NRECA supports the budget requests for operation and maintenance (O&M) of existing facilities. Adequate O&M of projects remains a high priority in order to meet contractual commitments for delivering water and power benefits to consumers. Hydroelectric powerplants, as you know, provide a clean, renewable source of power, making the nation less dependent on fossil fuels as a source of energy.

Central Valley Project - We support the Bureau of Reclamation's plans to use $11.3 million from the CVP Restoration Fund to finance continued construction of the Shasta temperature control device (TCD).

Construction of a TCD in the reservoir at Shasta Dam which could greatly aid anadromous fishery migrations in the Sacramento river, including the winter run chinook salmon. Expensive cold water releases that bypass the power generators can be stopped when the temperature control device is placed in service. Therefore, work on the device should be expedited so that cost savings could be achieved.

Inland Waterways User Fees - Although the Administration did not propose any new or higher waterway user taxes for FY 1996, NRECA continues to oppose any such proposals and asks the Subcommittee to reject them if they arise. These taxes are intended to recover the operation and maintenance costs of the shallow-draft inland navigation system by increasing the inland waterway user fees, such as raising the inland waterway fuel tax. Inland waterway users are already paying for one-half of inland navigation construction and rehabilitation through the current water fuel tax rate.

Such proposals will substantially affect the cost and competitiveness of coal. The increased shipping costs would only serve to raise the cost of coal and will affect a utility's decision on where to purchase the coal; will adversely impact rural electric systems that must ship coal from one region of the country to another; will be borne by the ultimate consumers, who will also be affected by the increased costs of groceries and raw materials due to this increased tax.

DEPARTMENT OF ENERGY NUCLEAR PROGRAMS

Nuclear Reactor R&D - The NRECA membership has resolved to support nuclear power and nuclear research programs. Funds to continue development of advanced nuclear technology are essential for maintenance of a viable nuclear industry. Nuclear power now provides about 20 percent of our nation's electrical needs and is vital to our economy.

We commend the Congress and the Department of Energy for their insight in establishing these important programs and urge you to continue your support for funding in FY 1996. These programs will reestablish the nuclear option in the United States by restoring utility and industry confidence in the nuclear market and solidifying leadership in an expanding international market while helping to meet the energy needs forecast for our nation and the world.

We urge the Subcommittee to provide funds for the joint DOE-industry first-of-a-kind engineering (FOAKE) program and the advanced reactor R&D program. The new advanced light water and modular gas-cooled reactors offer passive and inherent safety features that preclude the possibility of core meltdown and the need for emergency evacuation plans. The small modular increments which can be factory fabricated assure economic generation of electricity with nuclear power and are particularly well-suited for use in sparsely populated areas.

The Gas Turbine - Modular Helium Reactor (GT-MHR) program, although relatively new, appears to offer outstanding potential due to its inherent safety, reduced construction costs, increased operating efficiency, lower wastes, and low maintenance. We urge you to continue your support for the GT-MHR program at a minimum annual level of $25 million.

Nuclear Waste Disposal - We also support continued funding for the Civilian Radioactive Waste Management program so that budget limits imposed on this program do not seriously delay underground studies at Yucca Mountain, Nevada. We urge the Subcommittee to continue to provide the funding levels necessary to expeditiously evaluate Yucca Mountain as a suitable repository site.

OTHER PROGRAMS

Renewable Energy Production Improvement Program - Section 1212 of the Energy Policy Act of 1992 establishes a production incentive program whereby consumer-owned electric utilities (e.g. public power systems and rural electric cooperatives) can apply for payments from the Department of Energy equal to 1.5 cents per kilowatt hour of electricity generated from new solar, wind, geothermal, and biomass projects.

Rural electric cooperatives are interested in a number of renewable energy projects that might be developed as a result of the new incentive payment program. Projects of this nature require a long lead time for planning and construction, and financial markets must have confidence in a long-term payment stream before they will underwrite such ventures. Therefore, NRECA joins the rest of the consumer-owned electric utility industry in urging Congress to appropriate funds for the Renewable Energy Production Incentive Program for FY 1996.

Electric and Magnetic Fields - Electric and magnetic fields (EMF) caused by electric current at power frequencies continues to be a human health concern. The most recent studies from Canada and France are inconclusive, but confirm the need for research.

In section 2118 of the Energy Policy Act of 1992, the Congress authorized an expanded five-year, $65 million federal research and information effort in partnership with nonfederal parties, and obligated DOE to act as coordinator of the various federal research efforts underway. The federal government's share of $32.5 million will have to be appropriated over the five-year period to meet its commitments to this program.

We commend this Subcommittee for its support of the federal EMF research program in the past. FY 1996 is the third year of the program, and we hope the federal government's share will be fully funded over the five year time frame.

Many rural electric distribution systems have already contributed monies to help start the federal research effort. Most of those systems have committed to support the full five-year effort. We believe the federal-nonfederal partnership is essential to ensure the research is adequate, coordinated, and credibly received.

Mr. Chairman, I thank the Subcommittee for the opportunity to present this testimony on behalf of NRECA, and I would be pleased to respond to any questions.

TUESDAY, MARCH 28, 1995.

DOE EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH

WITNESS

KRIS W. KIMEL, PRESIDENT, KENTUCKY SCIENCE AND TECHNOLOGY COUNCIL, INC., REPRESENTING THE COALITION OF EPSCOR STATES

Mr. MYERS. Kris Kimel, President of the Kentucky Science and Technology Council. Your entire statement will be made a part of the record, and you may proceed for your five minutes.

Mr. KIMEL. Thank you very much.

My name is Kris Kimel. I am President of the Kentucky Science and Technology Council, Inc. I am submitting this testimony to the subcommittee in support of the Experimental Program to Stimulate Competitive Research, known as EPSCoR.

On behalf of the coalition of the 19 States participating in EPSCoR, we urge the subcommittee to continue its strong support of the EPSCoR program at the Department of Energy and to provide $15 million for the DOE EPSCoR program in fiscal year 1996.

First, let me thank Mr. Bevill, Mr. Rogers, and you, Mr. Chairman, for your past support of this important program. Without you, DOE EPSCoR would certainly not exist.

The National Science Foundation established the EPSCoR program in 1979 in response to congressional concerns about the concentration of Federal support for university research at a relatively small number of institutions located in a handful of States. Congress has expanded EPSCoR beyond NSF and programs are now under way or in the process of being established in the Departments of Agriculture, Energy, and Defense, the Environmental Protection Agency, NASA, and the National Institutes of Health.

Kentucky EPSCoR is part of the Kentucky Science and Technology Council in Kentucky, a private, nonprofit corporation involved in major statewide projects in science and mathematics education, industrial modernization, including coordinating the implementation of the Kentucky Technology Service part of the NIST supported manufacturing extension partnership, technology transfer, and telecommunications.

Kentucky EPSCoR conducts statewide scientific competitions to identify new research areas which are likely to have significant impact on education and economic development in the State.

Since Kentucky became part of the EPSCoR program in 1985, we have received over $14-and-a-half million in planning, implementation, and traineeship grants from five Federal EPSCoR programs, including Defense, Energy, NASA, NSF, and EPA. The Commonwealth of Kentucky has committed over $7.8 million in new funds for these programs. With $80,000 provided by private sector sources and additional funds contributed by the participating colleges and universities.

An economic analysis of the Kentucky EPSCoR program showed that it has generated a 13 percent return on the State's investment in the program. Scientists and engineers supported by the first NSF EPSCoR program have more than tripled the amount of extramural funding received in the last five years.

The NSF program is an excellent base on which to build, but there is a demonstrable need for such a program in the Energy Department. Led by this subcommittee, Congress has endorsed the establishment of an EPSCoR program within the Energy Department.

The objectives of DOE's EPSCoR program are to enhance the competitiveness of the peer review process within academic institutions and to increase the probability of long-term growth of competitive funding to investigators at institutions in the EPSCoR States.

This is a research based technology development program. It is authorized under section 2203 of the Energy Policy Act of 1992. This authorization calls for the program to be operated by the Director of the Office of Energy Research; but in practice we have been pushed down into the education division, as OER has never taken sufficient interest in managing the program.

I am pleased to report that last year Kentucky was one of four States to successfully compete for a DOE EPSCoR implementation grant. Our two-year award of $1.25 million includes both energy research and human development components. The DOE grant provides support for four research clusters in fossil energy, environmental research, high energy and nuclear physics, and materials research, as well as several projects which will impact elementary, secondary, and undergraduate education.

Research and education personnel at eight colleges and universities have formulated a statewide program of energy-related research and education/human resources development. This program includes the participation of and interaction with national DOE laboratories and energy industries. For example, the Kentucky DOE EPSCoR project utilizes equipment and collaborates with scientists at DOE's national laboratories in Oak Ridge, Tennessee, and Newport News.

The Kentucky DOE EPSCoR program targets specific research areas in which it will endeavor to become nationally competitive. Experienced faculty are partnering with industry, with junior faculty, and graduate students to build upon their training and experiences. The research will cover some of Kentucky's strengths and needs in fossil energy and environmental research, and expand its expertise in high energy and nuclear physics and in materials research.

The DOE EPSCoR program holds great promise for Kentucky, its institutions of higher education, and is providing the base for economic development in expanded opportunities for all of our citizens.

In closing, Mr. Chairman and members of the subcommittee, we thank you for listening to our presentation on EPSCoR. We urge fiscal year 1996 funding for the program of $15.05 million, the level recommended in DOE's implementation plan.

It is an exciting program with great potential benefits for States such as Kentucky and Alabama. It is a program that will produce solid results in education and scientific research for the participating States and the Nation as a whole. We hope you will join us, as you have so ably in the past, in continuing to support the experimental program to stimulate competitive research at the Department of Energy.

And in closing, I would like to add, as a person who has been involved in science policy and economic development in Kentucky for a number of years, without a doubt, this is one of the best investments for building research and economic development capacity in our States.

Mr. MYERS. Thank you, Mr. Kimel, for your presentation.

[The statement of Mr. Kimel follows:]

WRITTEN TESTIMONY OF MR. KRIS W. KIMEL
PRESIDENT, KENTUCKY SCIENCE & TECHNOLOGY COUNCIL, INC.
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
MARCH 28, 1995

Mr. Chairman:

My name is Kris W. Kimel. I am President of the Kentucky Science & Technology Council, Inc. I am submitting testimony to this Subcommittee in support of the Experimental Program to Stimulate Competitive Research (EPSCoR). On behalf of the Coalition of the nineteen states[1] that participate in EPSCoR, we urge the Subcommittee to continue its strong support of the EPSCoR program at the Department of Energy and to provide $15.05 million for the DOE EPSCoR program in FY 1996.

First, let me thank Mr. Bevill, Mr. Rogers and you, Mr. Chairman, for your past support of this program. Without you, DOE EPSCoR would not exist. The primary mission of EPSCoR is to foster systemic and sustainable change in the capacities of universities in EPSCoR states to support nationally competitive research programs. Secondary objectives are to broaden geographic distribution of merit-reviewed research awards and access to quality education in science and engineering. In practice, EPSCoR also fosters enhanced interaction and cooperation in research and technology development among universities, state government, and industry in the participating EPSCoR states.

The National Science Foundation established the EPSCoR program in 1979 in response to Congressional concerns about the concentration of federal support for university research at a relatively small number of institutions located in a handful of states. Congress has expanded EPSCoR beyond NSF and programs are now underway or in the process of being established in the Departments of Agriculture, Energy and Defense, the Environmental Protection Agency, the National Aeronautics and Space Administration, and the National Institutes of Health.

Kentucky EPSCoR is a part of the Kentucky Science and Technology Council (KSTC), a private, non-profit corporation involved in major statewide projects in science and mathematics education, industrial modernization, including coordinating the implementation of the Kentucky Technology Service part of the NIST supported Manufacturing Extension Partnership, technology transfer, and telecommunications. Kentucky EPSCoR conducts statewide scientific competitions to identify new research areas which are likely to have significant impact on education and economic development in the State.

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[1] Alabama, Arkansas, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Puerto Rico, South Carolina, South Dakota, Vermont, West Virginia, and Wyoming

Since Kentucky became part of the EPSCoR program in 1985, we have received over $14.5 million in planning, implementation, and traineeship grants from five Federal EPSCoR Programs (Defense, Energy, EPA, NASA and NSF). The Commonwealth of Kentucky has committed over $7.8 million in new funds toward these programs, with $80,000 provided by private sector sources, and additional funds contributed by the participating colleges and universities.

The EPSCoR program is intended to broaden participation in the federally-funded research initiatives that ensure this country's technological and scientific leadership. The future ability of the United States to meet the economic and technology challenges of the next century depends, in large part, on building a truly national scientific and technical research infrastructure. An economic analysis of the Kentucky EPSCoR program showed that it has generated a 13% return on the State's investment in the program. Scientists and engineers supported by the first NSF EPSCoR program have more than tripled the amount of extramural funding received in the last five years.

I would like to share several important observations about the EPSCoR program in Kentucky:

- Seed funding for young faculty just starting their scientific careers is one of the best investments made by the EPSCoR program.
- A major consequence of the focus on competitiveness has been the development of infrastructure (such as laboratory equipment and new faculty positions) and collaboration among higher education institutions, which have made a marked change in the research environment in our state.
- A second consequence has been an increase in the quality of education in science, engineering and mathematics, as well as in the training of hundreds of faculty, students, and staff.

With funding from NSF, Kentucky EPSCoR supports a "visiting scholars program" for faculty at our six regional universities and seven private colleges and universities. It is closely connected with plans for the Advanced Science and Technology Commercialization Center (ASTeCC). And it has provided the seed-funding for our Center for Computational Sciences, now a world-class computer research facility.

The NSF program is an excellent base on which to build, but there is a demonstrable need for such a program in the Energy Department. Led by this Subcommittee, Congress has endorsed the establishment of an EPSCoR program within the Energy Department. The objectives of DOE's EPSCoR program are "to enhance the competitiveness of the peer-review process within academic institutions" and "to increase the probability of long-term growth of competitive funding to investigators at institutions" in the EPSCoR states. This is a researched based, technology development program. It is authorized under section 2203 of The Energy Policy Act of 1992. This authorization calls for the program to be operated by the Director of the Office of Energy Research (OER), but in practice we have been pushed down into the education division, as OER has never taken sufficient interest in managing the program.

I am pleased to report that last year Kentucky was one of four states to successfully compete for a DOE EPSCoR implementation grant. Our two-year award of $1.25 million includes both energy research and human development components. The DOE grant provides support for four research clusters in fossil energy, environmental research, high energy and nuclear physics, and materials research, as well as several projects which will impact elementary, secondary, and undergraduate education. The DOE funds are leveraged by this partnership with the Commonwealth of Kentucky and its universities.

Research and education personnel at Berea College, Eastern Kentucky University, Murray State University, Northern Kentucky University, Pikeville College, the University of Kentucky, the University of Louisville, Western Kentucky University, the Kentucky Science and Technology Council, and state government have formulated a statewide program of energy-related research and education/human resources development. The program includes the participation of and interaction with national DOE laboratories and energy industries. For example, the Kentucky DOE EPSCoR project utilizes equipment and collaborates with scientists at DOE's national laboratories in Oak Ridge Tennessee (ORNL) and Newport News (CEBAF).

The Kentucky DOE EPSCoR program targets specific research areas in which it will endeavor to become nationally competitive. Experienced faculty are partnering with industry, with junior faculty and graduate students to build upon their training and experiences. The research will cover some of Kentucky's strengths and needs in fossil energy and environmental research, and expand its expertise in high energy and nuclear physics and in materials research.

The Kentucky EPSCoR program is breaking new ground by bringing together scientists and academics at our universities and colleges. The DOE-EPSCoR program holds great promise for Kentucky's research universities as well as other institutions of higher education in the State.

The state-based nature of EPSCoR is directly responsive to concerns about the concentration of research in a small number of institutions. Other advantages include encouraging cooperative efforts among universities in states with limited resources, developing a broad base of research scientists with expertise related to an agency's mission and providing a critical mass around which a state's scientific enterprise can develop. Besides fostering competition and geographical equity in the distribution of federal research funds, participating states find real value in the EPSCoR program in an international economy driven by technology.

The DOE EPSCoR program is a vital component for enhancing the quality of education and research potential in EPSCoR states such as Kentucky, Alabama and Louisiana. Strong education and research programs in science and engineering provide economic development and expanded opportunities for all our citizens.

In closing, Mr. Chairman and Members of the Subcommittee, we thank you for listening to our presentation on the Experimental Program to Stimulate Competitive Research. We urge FY 1996 funding for the program of $15.05 million, the level recommended in DOE's implementation plan. It is an exciting program with great potential benefit for states such as Kentucky and Alabama. It is a program that will produce solid results in education and scientific research for the participating states and the Nation as a whole. We hope you will join us, as you have so ably in the past, in continuing to support the Experimental Program to Stimulate Competitive Research at the Department of Energy.

TUESDAY, MARCH 28, 1995.

ENERGY PROGRAMS

WITNESS

DR. CYNTHIA A. SPENCE, ASSOCIATE DEAN, SPELMAN COLLEGE

Mr. MYERS. The committee will now hear from Dr. Cynthia Spence, Associate Dean of Spelman College.

Dr. Spence, your prepared statement will be placed in the record and you may proceed as you would like.

Ms. SPENCE. Good morning, Mr. Chairman and other members of the committee. I am Dr. Cynthia Neal Spence, Associate Academic Dean at Spelman College in Atlanta, Georgia.

Spelman College is the Nation's leading undergraduate educator of African American women. Founded in 1881, with an investment of $100, the college enrolled 11 former women slaves. The college now enrolls about 2,000 students and employs about 130 full-time faculty members.

I speak to you today as an administrator-professor but more significantly as an alumna of this very prestigious institution.

Over the years, the college has earned international distinction for its science, engineering, and mathematics programs. Today, fully 38 percent of the college's diverse student body major in the sciences, mathematics, or a dual degree program in engineering, and 30 percent graduate annually in these areas. According to a 1993 survey of the top 100 baccalaureate degree producers, Spelman ranked second for the number of degrees awarded to African Americans in mathematics, fifth in the number of degrees in the physical sciences, and seventh for the number of degrees awarded in the biological sciences.

Since 1988, the college has witnessed a 57 percent increase in the number of science majors entering graduate programs. Some of our graduate school partners include Cornell University, Massachusetts Institute of Technology, Georgia Institute of Technology, University of Michigan, University of Wisconsin, and Purdue University. And, Mr. Chairman, you might be interested in knowing that we have enjoyed a relationship with Purdue University for about five years which has afforded our students the opportunity to visit Purdue University every fall to consider Purdue as a graduate institution. In response to that program, many of our students have entered science graduate programs at Purdue University and have successfully completed such programs.

Spelman's achievements in science, mathematics, and engineering areas in many ways are unparalleled and do not reflect national trends. Unfortunately, when reviewing trends related to women of color studying mathematics, science, and engineering, we see that today a young African American girl has one chance in 21,000 of getting a Ph.D. in these areas. Data cited in a recent speech delivered at Fort Valley State College by Terry Cornwell Rumsey, the Director of DOE's Office of Science, Education and Technical Information, confirmed a decline in the number of minorities receiving Ph.Ds in the science disciplines. For instance, she noted that in 1975 only 41 African Americans received Ph.Ds in this area. By 1990, the number had fallen to 21.

These trends are truly disturbing. As our Nation's trade deficit continues to climb and the budget deficit defies our most noble efforts to bring it under control, it is clear that the talents and the skills of every American will be needed to enhance our Nation's productivity and to meet the challenges of the next century and beyond.

Looking specifically at the areas of science and technology, there are many complex challenges facing the United States and most specifically the Department of Energy. Particularly as these issues relate to the national laboratories, energy efficiency, and environmental cleanup. In a report "Alternatives Futures for the Department of Energy National Laboratories," also known as the Galvin report, it was concluded that considering the environmental impact of current modes of energy use, enhancing the efficiency of energy utilization, and finding substitutes for fossil fuels is of critical importance. The report also found that the global market for clean energy sources could be in the hundreds of billions of dollars 20 to 30 years from now.

In the area of environmental cleanup, the report outlines concerns related to DOE's ability to have all of its sites cleaned by the year 2019. For the entire 3,365 square miles of the DOE complex, the report found that the problems associated with radioactive and hazardous waste are acute and pervasive.

Clearly, a trained and scientifically literate work force is needed to meet these daunting tasks. In response to these trends, many institutions of higher education have invested significant resources to enhance their science and technology activities. At Spelman we recently appointed Dr. Mae Jemison, a former NASA astronaut, to the college board of trustees. Additionally, the college has appointed an Associate Provost for Science Policies and Programs and increased faculty by 33 percent since 1988. And we have recently launched a $22 million science campaign with over 40 corporate partners. Despite these efforts, more resources are required.

Small undergraduate science centers of excellence like Spelman cannot conquer these challenges alone. We need internship, faculty research, instrumentation, and capacity building support. Particularly as the Nation's attention turns toward environmental science, we desperately need undergraduate curriculum models in this area. In this vein, every segment of our Republic—industrial, educational, and governmental—must develop linkages needed to equip women and men with the skills needed to move our country forward.

The role of the Federal Government in this effort is critical. In another report that was released entitled "Technology for a Sustainable Future," it was concluded that the Federal Government will need to, quote, "facilitate the training of a cadre of skilled technical workers to help develop, maintain, and operate the increasingly complex environmental technologies and support the development of holistic, multidisciplinary curricula in universities, emphasizing pollution prevention and efficiency in the use of resources."

In addressing these national educational and work force challenges, the Department of Energy plays a unique and critical role. With over 20 national laboratories and facilities, the Department of Energy has the largest scientific research and development system in the world. DOE reports that more than 30,000 scientists and engineers are associated with DOE-sponsored activities.

With this in mind, Spelman College requests that the committee at least level-fund the University and Science Education programs at $66 million. We also ask that programs in the Office of Environmental Restoration and Waste Management, the Office of Energy Efficiency, and the Office of Energy Research that support public-private partnerships with institutions of higher education be level-funded. And finally, we ask the committee to encourage DOE to continue to strengthen its efforts to build partnerships with undergraduate institutions of excellence, like Spelman College, small schools with a legacy of achievements but limited resources, the very schools that are out front in terms of educating and training the majority of our Nation's youth.

I would like to thank the committee for allowing me to testify on behalf of Spelman College, and I would be interested in taking any questions that you might have.

Mr. MYERS. Well, thank you, Dr. Spence.

[The statement of Ms. Spence follows:]

TESTIMONY

Of

SPELMAN COLLEGE
Atlanta, Georgia

Before

THE HOUSE OF REPRESENTATIVES COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER

MARCH 28, 1995

Presented by Dr. Cynthia Spence, Associate Dean for Academic Affairs

BACKGROUND

Mr. Chairman, other Members of the Committee, I am Dr. Cynthia Spence, Associate Dean for Academic Affairs at Spelman College. Spelman College is the nation's leading undergraduate educator of African American women. Founded in 1881, with an investment of $100, the College enrolled 11 women students who had been slaves. The College now enrolls about 2,000 students and employs 130 full-time faculty members.

Over the years, the College has earned international distinction for its science, engineering and mathematics program. The College launched its science program during the early 70s, long before science education was embraced as a national priority. Today, fully 38 percent of the College's diverse student body major in the sciences, mathematics, or a dual degree program in engineering, and 30 percent graduate annually in these areas. According to a 1993 survey of the top 100 baccalaureate degree producers, Spelman ranked second for the number of degrees awarded to African Americans in mathematics; fifth for the number of degrees in the physical sciences; and seventh for the number of degrees awarded in the biological sciences. Since 1988, the College has witnessed a 57 percent increase in the number of science majors entering graduate programs. Some of our graduate school partners include: Cornell University, Purdue University, Massachusetts Institute of Technology, Georgia Institute of Technology, University of Michigan, and University of Wisconsin.

Spelman's achievements in the science, mathematics and engineering areas, any many ways, are unparalleled, and do not reflect national trends. Unfortunately, when reviewing trends related to women of color studying mathematics, science, and engineering, we see that, today, a young African American girl has one chance in 21,000 of ever getting a Ph.D. in these areas. Conversely, she has two chances in five of dropping out of high school before graduation. As the Congress grapples with welfare reform, I know the Committee is aware of these issues.

The Federal science agencies are struggling with these issues as well. Take for example, data cited in a recent speech delivered to Fort Valley State College by Terry Cornwell Rumsey, the Director of DOE's Office of Science Education and Technical Information. In her speech, she shared data confirming a decline in the number of minorities receiving Ph.Ds. in the science disciplines. For instance, she noted that in 1975 only 41 African Americans received Ph.D.s. By 1990, the number had fallen to 21.

These trends truly are disturbing. As our nation's trade deficit continues to climb, and the budget deficit defies our most noble efforts to bring it under control, it is clear that the talents and skills of *every American* will be needed to enhance our nation's productivity and to meet the challenges of the next century and beyond.

CURRENT ENERGY AND ENVIRONMENTAL CHALLENGES

Looking specifically at the areas of science and technology, there are many complex challenges facing the United States, and, more pertinently, the Department of Energy, particularly as these issues relate to the National Laboratories, energy efficiency and environmental cleanup. In a report

"Alternative Futures for the Department of Energy National Laboratories," also known as the "Galvin Report," released last month by the Secretary of Energy's Advisory Board, it is noted that during the next 20 years, world energy demand will grow by 50 percent. The report concludes that considering the environmental impact of current modes of energy use, enhancing the efficiency of energy utilization, and finding substitutes for fossil fuels is of "critical national importance." The report also found that " the global market for clean energy sources could be in the hundreds of billions of dollars 20 to 30 years from now."

In the area of environmental cleanup, the report outlines concerns related to DOE's ability to have all of its sites cleaned up by 2019. For the entire 3365 square miles of the DOE complex, the report found that the problems associated with radioactive and hazardous waste are acute and pervasive. Similar findings were included in a May 1994 report prepared by the Congressional Budget Office, "Cleaning up the Department of Energy's Nuclear Weapons Complex." The CBO analysis reports that the DOE complex "holds in storage over 100 million gallons of highly radioactive waste, 66 million gallons of waste contaminated with plutonium, and even larger volumes of waste with lower levels of radioactivity. As recently as 1993, DOE estimated that the cost of cleanup ranges from $400 billion to $1 trillion.

Clearly, a trained and scientifically-literate workforce is needed to meet these daunting tasks. In response to these trends many institutions of higher education have invested significant resources to enhance their science and technology activities. At Spelman, we recently appointed Dr. Mae Jemison, a former NASA astronaut, to the College's Board of Trustees. Additionally, the College has appointed an Associate Provost for Science Policies and Programs, increased faculty by 33 percent since 1988, and launched a $22 million science campaign with over 40 corporate partners. Despite these efforts, more resources are required. Small undergraduate science centers of excellence like Spelman cannot conquer these challenges alone. We need internship, faculty research, instrumentation and capacity-building support. Particularly as the nation's attention turns toward environmental science. We desperately need undergraduate curriculum models in this area. In this vein, every segment of our republic -- industrial, educational, and governmental -- must develop linkages needed to equip women and men with the skills needed to move our country forward.

The role of the Federal government in this effort is critical. A report released last summer, "Technology for a Sustainable Future," by the National Science and Technology Council, the organization charged with coordinating science, space and technology policy across the Federal government, concluded that the Federal government will need to ***"facilitate the training of a cadre of skilled technical workers to help develop, maintain, and operate the increasingly complex environmental technologies and support the development of holistic, multidisciplinary curricula in universities, emphasizing pollution prevention and efficiency in the use of resources."***

In addressing these national educational and workforce challenges, the Department of Energy plays a unique and key role. With over 20 national laboratories and facilities, the Department of Energy has the largest scientific research and development system in the world. DOE reports that more than 30,000 scientists and engineers are associated with DOE-sponsored activities.

RECOMMENDATIONS

With this in mind, Spelman College requests that the Committee at least level-fund the university and Science Education programs at $66 million. We also ask that programs in the Office of Environmental Restoration and Waste Management, the Office of Energy Efficiency, and the Office of Energy Research that support public/private partnerships with institutions of higher education be level-funded. And finally, we ask the Committee to encourage DOE to continue to strengthen its efforts to build partnerships with undergraduate institutions of excellence, like Spelman College -- small schools with a legacy of achievements, but limited resources -- the very schools that are out front in terms of educating and training the majority of our nation's youth.

I would like to thank the Committee for permitting me to testify today on behalf of Spelman College. I would be pleased to answer any questions.

Mr. MYERS. You are still admitting only African women; is that right?

Ms. SPENCE. Yes, we are.

Mr. MYERS. No men.

Ms. SPENCE. No men. And as an alumna, I don't think we are going to admit any men.

Mr. MYERS. You are discriminating.

Ms. SPENCE. There is a special opportunity for women to engage in an educational environment, in a single sex institution, and we think that we will continue that tradition.

Mr. MYERS. I have two colleges in my district, still one for women and one for men. Thank you for your testimony.

Ms. SPENCE. Thank you very much.

TUESDAY, MARCH 28, 1995.

ROBOTICS

WITNESSES

DAVID K. WEHE, ASSOCIATE PROFESSOR OF ENGINEERING, UNIVERSITY OF MICHIGAN

DELBERT TESAR, PROFESSOR, UNIVERSITY OF TEXAS

JAMES TULENKO, PROFESSOR, UNIVERSITY OF FLORIDA

MONGI ABIDI, PROFESSOR, UNIVERSITY OF TENNESSEE

Mr. MYERS. We will now be pleased to hear Dr. Wehe, Associate Professor of Engineering at the University of Michigan. Your prepared statement will be placed in the record and you may proceed up to five minutes as you wish.

Mr. WEHE. Thank you, Mr. Myers.

I am Professor David Wehe from the University of Michigan and my colleagues and I appear before you today. This is Professor Delbert Tesar, from the University of Texas; Professor Mongi Abidi, from the University of Tennessee; and that is Professor Jim Tulenko, the tan one, from the University of Florida; and we are here to discuss with you today the University Research Program in Robotics, as part of the robotics technology development program within the Office of Technology Program in EM.

This particular program has as its focus the goal of developing intelligent machines which can perform work in hazardous environments and reduce human exposure to risk.

The program was initiated in 1987, the university part, by the Department of Energy and is currently funded at about $4 million. These universities that you see before you are supporting the five major thrust areas of the robotics technology development program.

Now, the URPR has been strongly supported by this committee since its inception, and we welcome the opportunity each year to reflect upon its accomplishments and proposed directions. The theme of our testimony this year is impact. And the key areas that we choose to weigh are education, technology innovation, DOE mission impact, commercial impact, and cost efficiency. Let me quickly look at these five factors.

One, education, 300 students educated in technical areas directly as a result of your particular program here; technology knowledge innovation, 200 technical papers generated, 24 patents filed. The

DOE robot Carmel won first place in the National Robot Championship. First demonstration of coordinated robots working together; Best of What's New in Technology by Popular Science; featured in AI Magazine and CNN Science; 30 percent of the papers presented at the International Mobile Robots Conference cited this program and so on and so on and so on.

In the area of DOE mission impact, these five universities are working closely, shoulder to shoulder, with the national laboratories. During the past year we worked on developing a waste inspection robot for Fernald—dual-arm robots for decontamination and dismantlement, long reach manipulators for tank waste retrieval systems for Hanford.

And how have the universities done? They were evaluated this past month by the national lab coordinators and were all ranked as outstanding. That was with two exclamation points. With quality, quantity, and timeliness. That was good enough to get the URPR apparently included in DOE's submission request for this upcoming year, 1996, at the current level of funding.

If you look at the impact on Corporate America, you can see that there are six small businesses established from this program, spin-off programs, six SBIRS and so on and so on.

If you look at the broader scale, though, if you step back and take a look at how robotics are doing in this country; in 1991 the Council on Economic Competitiveness cited robotics as key national strategic technology, and it was cited as a loser. Far right on the right-hand column.

This past year it has recently reviewed that and we have now moved up from the lowest possible level to the middle level. We are not all the way to the leader internationally, but the message I want to bring to you is if we can continue this progress, we are well on our way to the top rating and that your investment in this program is paying off. It has been a long-term investment and it is paying off.

I say that I will argue with you this is a win-win-win program because it is done cost effectively. Innovations, publications, patents, so on and so forth. Data divided by the dollars spent, this is a win-win-win program.

So in summary I want to thank you for your continued support of this program and we hope the committee will be in a position again this year to continue its support of the robotics technology development program at DOE and the university research program in robotics.

Mr. MYERS. Thank you, Dr. Wehe, for your statement.

[The statement of Mr. Wehe follows:]

TESTIMONY PRESENTED ON BEHALF OF THE DOE UNIVERSITY RESEARCH PROGRAM IN ROBOTICS—IMPACT ON AMERICA TO THE ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE ON APPROPRIATIONS

Witness list: Professor David Wehe, University of Michigan; Professor James Tulenko, University of Florida; Professor Mongi Abidi, University of Tennessee; and Professor Delbert Tesar, University of Texas.

Mr. Chairman and members of the committee:

I'm David Wehe from the University of Michigan, and my colleagues and I appear before you today to discuss the University Research Program in Robotics (URPR).

This program has as its focus the goal of developing intelligent machines which can perform work in hazardous environments and reduce human exposure to risk.

The program was initiated in FY'87 by DOE, is currently funded at $4M for FY'95. The current participants are the Universities of Florida, Michigan, Tennessee, Texas, and New Mexico. This group of universities are supporting the five major thrust areas of the Robotics Technology Development Program and work in very close collaboration with the national laboratories (including ORNL, SRTC, PNL, LANL).

The URPR has been strongly supported by this committee since its inception, and we welcome the opportunity each year to reflect with you upon our accomplishments and proposed directions.

The theme of our testimony this year is IMPACT—impact on America. What influence or impact has this project had on America?

The KEY areas we choose to weigh as value-added to our modern society are: education, technology innovation, DOE mission impact, commercial impact, and cost-efficiency. Let's look at these 5 factors:

1. Education.—300 students have been educated in technical engineering areas directly as a result of this program.

2. Technology innovation.—200 technical papers generated, 24 patents filed, our DOE robot CARMEL won the first National Robot Championship for indoor robots, first demonstration of coordinated robots working together at AAAI Indoor Robot Exhibition, we have always placed in the top three in outdoor robot competitions, robot have been named as the Best of What's New in Technology by Popular Science, have appeared on the cover of Nuclear International, featured in AI Magazine, CNN Science, 30% of the papers presented at the International Mobile Robots Conference cited achievements from this project, and so on, and so on.

3. DOE Mission Impact.—The five universities are working within DOE's EM's Office of Technology Programs, with the Robotics Technology Development Program. The universities work shoulder to shoulder with the national laboratories to accomplish RTDP goals set by DOE Program Officers, which included during this past year: waste inspection robot for Fernald, dual-arm robot for D&D, automated chemical and radiological analysis modules, and long-reach manipulator based tank waste retrieval systems for Hanford. For example, Michigan developed, tested, and installed a navigation system for backward travel for the Fernald inspection robot. How have the U's done? The Universities were evaluated by the National RTDP Coordinators last month and were all ranked as "outstanding" in terms of quality, quantity, and timeliness. Which was apparently good enough to get the URPR included in DOE's OTP budget submission for FY'96 at the current level of funding.

4. Impact on Corporate America.—As mentioned in earlier years, we have been proud to see our innovations incorporated into the commercial sector. Six SBIRs have been underway with the university participants, technology licenses have been awarded to companies, six small businesses established and flourishing, spin-off products (radiation imaging cameras, smart wheel chairs, sensors to aid the blind).

But look at the impact on a broader scale: In 1991, the Council on Economic Competitiveness compared key US technologies to international competitors. Robotics was listed as one of a handful rated as US "losers". Sentiment was echoed in DOD OTA report, and Office of Science and Technology Programs (OSTP) National Technology Assessment listed robotics as one of 5 national strategic technologies. Recently, the CEC has reported that the US has moved from being labelled as "loser" to the middle rating of "weak". This is not surprising if one looks at our economy and technological advances being made. And if we can continue our progress, we're well on the way to the top rating. The impacts will be far-ranging on corporate America. Your investment in this program is paying off.

5. Cost efficiency.—Can we afford this? Are we doing it efficiently? I submit that if you take any of the measures presented: innovations, publications, technologists educated, patents, DOE mission support, corporate impact and divide these by the dollars spent, you'll discover this program is a bargain. A win-win-win bargain.

Thank you again for your support of this program. We are here to assure that your trust and support is appreciated by many people who have been touched by this program, and is well-deserved. We hope that the committee will be in a position again this year to continue its support of the RTDP and URPR.

March 28, 1995

DOE UNIVERSITY RESEARCH PROGRAM IN ROBOTICS

Impact on America

Testimony presented to the Energy and Water Development Subcommittee on Appropriations

Professor David K. Wehe
University of Michigan

The U.S. Department of Energy has provided support to the DOE University Program in Robotics during the period FY'87-FY'95 to pursue long range research leading to the:

``development and deployment of advanced robotic systems capable of reducing human exposure to hazardous environments, and of performing a broad spectrum of tasks more efficiently than utilizing humans."

The DOE University Research Program in Robotics (URPR) is an important element of the Robotics Technology Development Program (RTDP) within the DOE EM's Office of Technology Development (OTD). The integration of the DOE University Program in Robotics into RTDP, through the full cooperation of six national laboratories, has strengthened RTDP, and has provided an avenue for the productive results of university research to find direct applications in problems of vital interest to DOE. This program would like to thank the committee members for their historically strong support

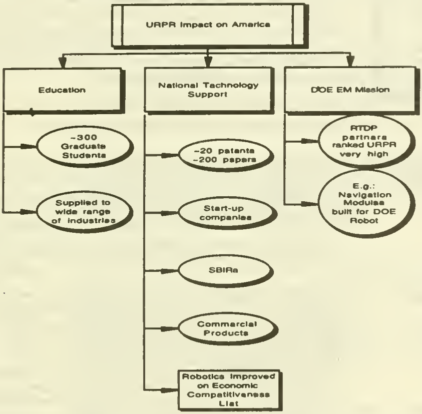
Request for the Committee	*We request that the committee allocate $4 million of the Office of Technology Development (OTD) nondefense research funds to continue the University Research Program in Robotics (URPR) efforts toward the development of safer, less expensive, and more efficient robotics for environmental restoration, and waste management; bringing the total RTDP budget for FY'96 to $27.6 million.*

Developing Advanced Robotics for DOE

Develop robotic solutions for work in hazardous environments

The goal of this program is to utilize and advance state-of-the-art robotic technology in order to remove humans from potentially hazardous environments. Established by DOE in FY'87, the project has produced an impressive array of technological innovations which have been incorporated into the commercial sector. This program has reached a state of maturity and is immersed in efficiently educating the technologists and inventing our country's advanced robotic technology of the next century while meeting today's technology needs for DOE.

Impact on America


URPR Impact on America
Education
National Technology Support
DOE EM Mission
~300 Graduate Students
Supplied to wide range of industries
~20 patents ~200 papers
Start-up companies
SBIRs
Commercial Products
Robotics Improved on Economic Competitiveness List
RTDP partners ranked URPR very high
E.g.: Navigation Modules built for DOE Robot

The URPR continues to make a significant impact on American robotic and manufacturing technology in three areas: education, national technology development, and DOE mission support.

Robotics: strategic national technology

SELECTED U.S. TECHNOLOGIES	1991	1994
Materials		
Advanced metals	■	■
Structural ceramics	■	■
Silicon	■	■
Membranes	■	■
Manufacturing		
Leading edge sci. instr.	■	■
Design for manufacturing	■	■
Total quality management	■	■
Automation and robotics	■	■
Electronics		
Laser devices	■	■
Photonics	■	■
Optical info. storage	■	■
Printed circuit board tech.	■	■

■ competitive ■ weak ■ losers

The Council on Economic Competitiveness compares key U.S. technological capabilities to its international competitors. Of the several strategic areas listed as an *essential need, robotics and advanced manufacturing* was one of a handful listed in critical condition. This conclusion was also echoed in the DOD OTA technology assessment report. In addition, the 1991 Office of Science and Technology's (OSTP) National Technology Assessment listed robotics as one of the five most vital strategic technologies for government support. The national need for a concerted thrust in the development of robotics has been universally recognized.

The 1994 update to the Council on Economic Competitiveness Report shows robotics has moved from "loser" up to to "weak" when compared with international competitors. The URPR has played a major role in this improvement. Through the production of advanced students and technology, the program has enhanced our long-range international industrial competitiveness. This is seen in the commercial products which have resulted from this work, the role of the graduates of this project in manufacturing, environmental, and educational programs throughout the country, and the applicability of this work to DOE's Environmental Restoration and Waste Management Program and the Advanced National Manufacturing Program.

This progress, if allowed to continue, will reposition the U.S. as the "competitive" leader and predominant force in this international industry.

IMPACT: Educating 21st Century Technologists

The URPR has educated about 300 advanced degree students in the critical engineering fields, including many with doctorates. These students have now entered the work force, and are contributing to the industrial resurgence based on robotics and advanced manufacturing technology. Graduates from this project have built successful startup companies in computer vision (MI), video databases (CA), and intelligent manufacturing (MI, FL, TX). Society has received students educated in a vital technology area at substantially lower costs than using federally-funded fellowships.

IMPACT: Innovation

The URPR has produced prodigious levels of innovation in research and development. While current demonstrations reveal next-generation technologies, even more advanced capabilities continue to emerge from the laboratories. These include new types of locomotion (small flying robots, multiple degree of freedom vehicles), navigation techniques, sensing modalities (radiation cameras and laser imaging devices), environmentally hardened components (for temperature and radiation), and dextrous manipulators. These new machines have an unparalleled man-machine interface and inherent intelligence, with the capability of being able to integrate many diverse sensors simultaneously. These devices will become or inspire the intelligent machines of the next century, including smart wheel chairs and obstacle avoidance aids for the blind.

This innovation can also be seen in the following statistics:

o An estimated 24 patents filed. At the last international Mobile Robots conference, 30% of the papers presented cited the fiducial work being performed by the URPR.

o Over 200 technical papers published in technical journals and conferences.

o The URPR robot CARMEL won the first National Robot Competition and was awarded the Best in What's New in Technology for 1992 by Popular Science magazine. During the 1993 National Robot Exhibition, two URPR robots worked autonomously and collaboratively to locate, move, and reorganize large objects. This was the first demonstration of autonomous robots working together to accomplish tasks at a national forum. This project has been heralded worldwide, and praised by Popular Science, CNN News, as well as featured in technical journals, such as the Artificial Intelligence (AI) Magazine.

IMPACT: Technology for Corporate America

In addition to research and education, the URPR contributes directly to an important mission area: technology transfer. The URPR's research agenda is determined through interactions with the national laboratories and private industries active in the area of robotics. This application-driven research has yielded results leading to products in the commercial sector.

The list of URPR technology transfer successes include radiation imaging cameras which can be purchased commercially from RMD, techniques for ultrasonic noise rejection and a multiple degree of freedom vehicle which are being licensed to commercial interests. In addition, technology transfer is in process through joint SBIR grants with small businesses (TRC, RMD, Schilling, Bonneville Scientific, REMOTEC, Sopha Medical), and joint research projects (e.g., RedZone Robotics, Inc.).

Private industry still lacks the ability to undertake the long-range R&D programs which lead to these commercial successes. Although problem-specific solutions to DOE problems tend to be too narrow for broad commercial interests, the URPR is particularly proud of its success in transferring innovations into viable commercial products, and will continue to emphasize this flow whenever appropriate.

IMPACT: Robotics for DOE Environmental Management end Cleanup

The motives for undertaking a comprehensive research effort in the application of advanced robotics to EM tasks in hazardous environments reflect both economic considerations and health and safety concerns. As part of RTDP, the URPR is contributing to minimizing risks to human health, enhancing workers safety, reducing secondary waste, and protecting the environment. The URPR supports needs-driven applied research to develop innovative and synergistic technologies in support of five RTDP thrust areas: Cross-Cutting and Advanced Technology (CC&AT), Contaminant Analysis Automation (CAA), Decontamination & Dismantlement (D&D), Mixed Waste Operations (MWO), and Tank Waste Retrieval (TWR).

During FY'95, the URPR/RTDP achieved its 9 planned goals, including:

1. deployment of a waste drum inspection robot in a Fernald warehouse,
2. completed development of a control system and dual-arm robot,
3. validated automated chemical and radiological analysis modules, and
4. continued development of the long-reach manipulator-based TWR test system.

For FY'95, the URPR was unanimously ranked as providing outstanding technical contributions and value by the RTDP coordinators and DOE Program Manager.

For FY'96, the URPR/RTDP proposes to attack four DOE technology goals:

1. complete development of a fully functional tank waste retrieval (TWR) test system,
2. demonstrate a dual-arm work module for D&D and TWR, and develop a mobile robot for autonomous environmental assessments of large areas,
3. demonstrate automated analytical chemistry modules for contaminants,
4. complete systems for automated handling of mixed waste materials, and robots for automated inventory inspections.

As part of the D&D effort, robots equipped with advanced sensors and controls are being designed and built to perform surveillance, characterization, decontamination, and dismantlement of high radiation facilities which have been targeted for decommissioning by DOE.

IMPACT: Cost Efficient Technology Generation

National policy has focused on economic growth and world leadership in science and technology. In concert with these thrusts, the URPR efficiently integrates education, research, and technology transfer in a natural and effective way. By integrating DOE needs, research, education, and technology transfer as a continuous project process, a new and cost-effective paradigm for DOE programs is being proven.

Program Request

During FY'95, the URPR provided vital contributions to education and research while meeting DOE technology needs. The motivation for this project remains steadfast -- removing humans from hazardous environments while enhancing safety, reducing costs, and increasing productivity.

Request for the Committee

To continue this vital program, we request that the Committee include the following language into the FY'96 Energy and Water Appropriations Bill:

The committee allocates $4 million of the Office of Technology Development (OTD) nondefense research funds to continue the University Research Program in Robotics (URPR) efforts to develop safer, less expensive, and more efficient robotics for environmental restoration and waste management; bringing the total RTDP budget for FY'96 to $27.6 M.

Mr. MYERS. Again, your time has expired, but if there are any brief comments any of you wish to make.

Mr. TESAR. I think it is a very unusual situation to have four major universities working together for such a long period of time and so cohesively and working with the laboratories as well.

Mr. TULENKO. We are asking for the administration's request for the Office of Technology Assessment's program for the robotics excellence in decontamination development.

Mr. MYERS. Well, thank you. And decontamination certainly plays an important role, we realize that.

TUESDAY, MARCH 28, 1995.

NUCLEAR MEDICINE APPLICATIONS PROGRAMS

WITNESS

DR. ROBERT ATCHER, AMERICAN COLLEGE OF NUCLEAR PHYSICIANS AND THE SOCIETY OF NUCLEAR MEDICINE

Mr. MYERS. We are now pleased to hear Dr. Robert Atcher, College of Nuclear Physicians and the Society of Nuclear Medicine.

Dr. Atcher, your prepared statement will be placed in the record and you can proceed up to five minutes as you wish.

Mr. ATCHER. Good morning, members of the committee, I am Robert Atcher, a member of the faculty of medicine at the University of Alabama at Birmingham, and I am here to testify on behalf of the Society of Nuclear Medicine and the American College of Nuclear Physicians. Their membership consists of over 15,000 physicians, scientists, pharmacists, and technologists who are active in the practice of nuclear medicine.

Nuclear medicine has an impact on every person in this room. My first task today is to discuss the budget for the Department of Energy. The development of nuclear medicine has been due to continued support of programs funded by the Department of Energy and predecessor agencies.

We are about to embark on two new exciting areas of research. The first is molecular nuclear medicine. We are developing new probes daily that can illuminate disease in the human body. Nuclear medicine is the only imaging modality capable of tracing these probes in the human body. The gains being achieved in this exciting new area of research can only be continued with your support. It is essential that investigators continue to receive support for excellent peer review research.

Nuclear medicine is also making strides in the treatment of disease, the second exciting area of research. These strides started with the use of iodine to treat benign and malignant diseases of the thyroid. We can now treat the painful spread of cancer to the bone and cancers of the breast and prostate. We are using monoclonal antibodies to treat lymphomas and leukemias that resist other forms of therapies.

We are embarking on new treatment based on radioisotopes for cancer and benign diseases. These forms of therapy will be available to nuclear medicine practitioners for their parents in all parts of the country without the need for expensive facilities to deliver the treatment. Nuclear medicine therapy can be delivered to millions of patients around the country.

The practice of nuclear medicine can only take place with radioisotopes produced in reactors and accelerators often requiring enriched stable isotopes for their production. The Department of Energy commissioned a study by the Institute of Medicine to examine the availability of these isotopes for biomedical applications. We urge you to direct the department to study this recently released report carefully. The future course of the department is in question and we believe that one of its tremendous successes has been in the development of isotopes for medical uses.

When I testified before the subcommittee last year, I noted that the Energy Department had many problems in its isotope production program. This year I bring a different message. The Congress and the department have made great strides in getting this program back on track. We owe a debt of gratitude to the committee in recognizing one problem and repealing Public Law 101–101 and its revolving fund and the mandate for full cost recovery. New leadership in the program has proven to be proactive and has included the nuclear medicine community in its planning and program management.

Visible evidence of changes in the program, including restarting the Calutrons at Oak Ridge National Laboratory for enriching stable isotopes; and strides in providing a reliable domestic source of Molybdenum number 99, which we use to produce Technetium-99m, the workhorse of nuclear medicine.

We also want to thank the committee for its continued support of the National Biomedical Tracer facility. The NBTF will produce radioisotopes that will assist us in developing molecular nuclear medicine and new forms of therapy. We ask the committee to continue to support the NBTF to ensure this vital facility is developed.

My second task is to address the committee's role in the Nuclear Regulatory Commission and its oversight of medical programs. We applaud the efforts of this Congress in attempting to reduce the yoke of regulatory oversight, particularly the one that we face in the practice of nuclear medicine. In addition to the oversight of medicine that all physicians face on a Federal level, we in nuclear medicine are overseen by the NRC, OSHA, FDA, and the EPA. The shift of oversight from NRC to the Agreement State Programs has been successful and should be continued.

The NRC has responsibility for basic radiation safety, but we have adequate regulation through other agencies of the practice of medicine and pharmacy in nuclear medicine at the State level. We estimate that the regulation of nuclear medicine adds $100 to each procedure that we perform. We urge the committee to direct the NRC to end the medical program as the current commissioners have recommended. The orderly transition to State regulation should be completed.

The Institute of Medicine is examining this issue now but the transition to managed care demands we implement these changes as soon as possible.

On behalf of the College of Nuclear Physicians and the Society of Nuclear Medicine, I thank you for this opportunity to present to the committee.

[The statement of Mr. Atcher follows:]

ACNP/SNM

American College of Nuclear Physicians/Society of Nuclear Medicine

WASHINGTON OFFICE

STATEMENT OF THE AMERICAN COLLEGE OF NUCLEAR PHYSICIANS AND THE SOCIETY OF NUCLEAR MEDICINE TO THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT COMMITTEE ON APPROPRIATIONS UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 28, 1995
10:45 a.m.

Presented by Robert Atcher, Ph.D.

1. Department of Energy - Isotope Production Programs
2. Department of Energy - Office of Health and Environment Research
3. Nuclear Regulatory Commission - Medical Practice Regulation

Mr. Chairman and Members of the Subcommittee: My name is Robert Atcher, Ph.D. and I am here on behalf of the Society of Nuclear Medicine and the American College of Nuclear Physicians. The Society represents 15,000 physicians, pharmacists, scientists and technologists who are active in the practice of nuclear medicine. The College represents the physicians who practice in this exciting field of medicine.

As many of you know, the practice of nuclear medicine touches everyone's life in this room. Nuclear medicine diagnostic tests provide the gold standard for diagnosing and managing patients with heart disease. We use nuclear medicine to stage patients with malignancy, in particular breast, prostate and lung cancer, Hodgkin's disease and lymphoma, and to monitor their progress through therapy. Nuclear medicine analyzes blood and other tissues from patients for minute quantities of hormones, drugs, nutrients and other biochemical compounds of interest.

But some of the most exciting progress in nuclear medicine has been made in the area of treatment of disease. Radioactively labeled antibodies are being used in investigational protocols to selectively ablate bone marrow, thus diminishing the debilitating side effects associated with traditional bone marrow therapy. Nuclear medicine can treat benign and malignant thyroid disease. Now we can alleviate the oppressing pain caused by the spread of cancer to the bone from prostate and breast cancer. All of these therapy protocols can be done anywhere in the country. No special equipment is required to treat the patient, making it available to all citizens of the country. Exciting research results are being reported daily utilizing radiolabeled small molecules for patient therapy. With your continued support, we will be making new strides into the next century in diagnosing Alzheimer's disease, diagnosing and treating cancer, and many other areas of medicine too numerous to discuss in my limited time here today.

I am here to discuss two major parts of the budget under your purview. The first is the Department of Energy. Nuclear medicine grew out of the Atomic Energy Commission's work in this area but really evolved directly from the Atoms for Peace program promoted by President Dwight D. Eisenhower in the 1950s. As we are marking nearly 50 years of nuclear medicine practice, we are also marking the dawn of a new era: molecular nuclear medicine. This new research, now in development, provides images that biochemically characterize disease within the living patient. This is a revolutionary development.

The United States has been the world leader and largest user of enriched, stable isotopes and radioactive isotopes for medicine, research and industrial applications. Despite this fact, we are the only major user country whose government lacks a coordinated program to support radioisotope production and does not assure the continued availability of these isotopes. As a result, U. S. physicians, scientists, and industry must rely almost entirely on supply sources outside the United States. A report by the Institute of Medicine (IOM) identified this national need for reliable supplies of isotopes. It recommended greater involvement by the Department of Energy as a solution.

We support the majority of the recommendations in the IOM report and believe that the citizens of the United States are best served by assuring the operation of uninterruptable sources for enriched, stable isotopes and radioactive isotopes for research and biomedical applications. Our greatest urgency is that the U.S. Government work to establish a reliable, uninterrupted supply of Molybdenum-99 as the source of Technetium-99m, the primary radioactive isotope use in diagnostic nuclear medicine.

We consider it essential that the Federal Government develop a cost-effective solution to guarantee the availability of stable, enriched isotopes and radioisotopes for the practice of nuclear medicine and their ubiquitous biomedical research use. Without this commitment, the future of research and medical applications reliant on these "raw materials" is in jeopardy. The citizens of the United states cannot remain vulnerable to foreign crises and inadequate backup supplies.

The use of isotopes is one of the core functions of the Department of Energy, pre-dating the AEC. This is one area in which the Department excels and should be supported strongly. Work with isotopes not only enhances the practice of medicine, but it affects work in all areas of biological sciences, physical sciences, and manufacturing. I am happy to tell you that nuclear medicine and all the other areas of research have a bright future with continued support to this program.

When I testified last year, I remarked that DOE had made some grievous errors in the handling of the Isotope Production Program. This year, I am proud to report that we have experienced a turnaround in that program. Under new leadership, the Isotope Production and Distribution Program has adopted a proactive operating philosophy. The members of the nuclear medicine community are being kept informed of progress. We are being given the opportunity to comment and advise the managers of the program. With your help in repealing P.L.101-101, we have put the program back on a more sound financial and managerial footing. The Calutrons at ORNL have been re-started, providing a secure supply of enriched stable isotopes. Progress in insuring the availability of Molybdenum-99 is apparent, and thus we feel confident that no interruption to our practice of nuclear medicine and to the global practice of medicine is likely to occur. While there is much more work to be done, we believe that the program is headed in the right direction.

In parallel to these efforts, the IOM report, which was recently released, gives very specific recommendations on how to improve the conduct of this program. The Society and the College appreciate this effort and hope that you will urge the Energy Department to study this report seriously and implement these needed recommendations. We have testified about many of the recommendations in prior appearances before this and other committees.

The construction of the National Biomedical Tracer Facility (NBTF) is one of the recommendations in the IOM report. We owe another thank you to the committee for responding to our request for continued funding of the NBTF. This dedicated accelerator will produce isotopes essential for the research, medical and industrial communities. As we have testified before, these isotopes are not available now due to the limited operating schedules at the national labs where they are currently produced. We hope that the committee will continue its support for the NBTF and communicate that support to the DOE. Many of the isotopes that the NBTF will produce will be used to refine and bring into practice the new research in molecular nuclear medicine. During the next decade, the NBTF will provide critical parts of the new and exciting research currently being conducted with DOE support.

Research brings me to the second topic relevant to DOE. The Office of Health and Environmental Research is the "home" to the Medical Applications program that funds nuclear medicine research. In spite of the fact that there are vacancies in the leadership in OHER and the Medical Applications Programs, I am also happy to report that there has been ongoing dialogue recently between the medical applications program and others in Energy Research (representing the user community) with the Isotope Production Program. This cooperation and collaboration can only help those of us who rely on stable enriched isotopes and radioisotopes for our work.

Finally, we urge that you continue to give the highest priority to funding the research in nuclear medicine. This enables members of the community to receive funding for excellent peer-reviewed research programs. This research has found rapid transfer to the diagnosis and management of important diseases because physicians have found nuclear medicine tests to be cost-effective in the care of their patients.

I would like to turn to another program within the jurisdiction of the Subcommittee, the Nuclear Regulatory Commission (NRC), in particular its medical program.

We appreciate the efforts of Congress to revise the rulemaking processes that govern so much in the lives of our citizens, including practitioners of nuclear medicine. Not only must we deal with the issues affecting all other health professionals, we must also practice under the overlay of regulation from NRC, the Occupational Safety and Health Administration, the Food and Drug and Administration and the Environmental Protection Agency. Needless to say, a major goal for our specialty is regulatory reduction and relief.

The NRC, and its predecessor agency the Atomic Energy Commission, has regulated the medical use of reactor-produced radionuclides for over 40 years. At the present time, NRC's scope of regulatory oversight comprises only 2% of ionizing radiation medicine. X-ray, fluoroscopy, and computed tomography machines, accelerators for therapy, and accelerator-produced radioactive material are under control of the states, with device standards set by FDA. Nuclear medicine, which uses reactor-produced radionuclides 80% of the time, is approximately 70% controlled by Agreement States, independent co-regulators of radiation safety who act under a common national standard.

Section 104 of the Atomic Energy Act instructed the NRC to "...permit the widest amount of effective medical therapy possible with the amount of special nuclear material available for such purposes and to impose the minimum amount of regulation consistent with its obligations under this act to promote the common defense and security and to protect the health and safety of the public". This means that NRC has the responsibility of basic radiation safety, but should leave the regulation of medicine and pharmacy in the hands of the State Boards of Medicine and Pharmacy.

However, as the years have passed, the NRC has encroached more and more into the control of medical and pharmaceutical practice decisions. More and more regulatory requirements have been established which deprive patients of appropriate procedures, limits physicians' and pharmacists' professional judgement, and add more cost to medical care. In nuclear medicine, the cost of ever-increasing regulatory requirements is about $1 billion a year, or about $100 per scan. These requirements do not improve anyone's radiation safety. As reimbursement for our procedures is decreasing, like those of other medical specialties, an increase in the cost of doing business makes survival of our specialty more problematic.

We are here today to ask you to end NRC's attempted regulation of nuclear medicine and pharmacy and transfer these functions to the states. Since the states now regulate 98% of ionizing radiation medicine, they can easily absorb the remaining 2%. A perfectly adequate structure exists right now for appropriate control of radiation safety by States and independent federal entities, such as the Veterans Administration, the Public Health Service, and the military. All states and federal entities currently enforce NRC's basic radiation safety standards.

The current Commissioners at NRC have expressed their wish to end NRC's Medical Program. The National Academy of Sciences-Institute of Medicine is now studying NRC's Medical Program. However, the NAS-IOM Report will not be completed until January 1996, and nuclear medicine needs relief now. We urge the Subcommittee to direct NRC to end its Medical Program and initiate an orderly transition of responsibility to the states.

This completes my statement, and I would be pleased to answer any questions the Members of the Subcommittee may have.

Mr. MYERS. Mr. Bevill.

Mr. BEVILL. Thank you, Mr. Chairman.

Dr. Atcher, I was very interested there in your recommendation, the bottom line there, if I understand you, with all these three agencies, three Federal agencies, overlapping and regulating. We are trying to get rid of a lot of these regulations now. And what is your recommendation and what have you all done about it as far as the committee handling these regulations?

Mr. ATCHER. Well, we have been advocating that the movement of the regulation of the practice of nuclear medicine to the State level be continued. Unfortunately, the feeling of the society and the college is that there has been some hesitancy on the part of staff at the NRC in implementing these changes and that we are asking that the commission be urged to implement those changes.

As a person who has recently moved from Illinois to Alabama, I come from two States that are participating in the Agreement State Program and it has been successfully implemented in both those States.

Mr. BEVILL. I think you have made some very good points and certainly I support your position. I think we have several instances of being overregulated, and all the reports I have gotten, the nuclear medicine has been very successful thus far and thank you very much.

Mr. ATCHER. Thank you.

Mr. MYERS. Thank you.

Dr. Atcher, are you pleased with the availability access through the needed radioisotopes, domestic, or not?

Mr. ATCHER. As I say, we are moving in the right direction, and the progress that we have made in the last year has been remarkable. But we are still in a position where we cannot get the isotopes that we need, particularly the radioisotopes that we need, in a timely and regular fashion. That is one of the reasons why we are interested in getting the NBTF built as soon as possible as well as providing a reliable domestic source of the reactor-produced radionuclides as well. And there are specific recommendations in the Institute of Medicine's report that we endorse relative to those two areas.

Mr. MYERS. Because of the relative short life of so many of the isotopes, isn't it very difficult to get them here in a timely fashion?

Mr. ATCHER. Well, it has been. But one of the criteria that we have been recommending as far as the NBTF goes is to have a site at a place that has access to a major airport so that those isotopes can be delivered in a timely fashion. And I think that the recommendations relative to the reactor-produced isotopes also operate towards facilities that have access to airports and shippers who can get the isotopes to the end user in a timely and regular fashion.

Mr. MYERS. Well, thank you for your testimony, and this committee has been concerned in prodding the department.

Mr. ATCHER. We appreciate that very much.

TUESDAY, MARCH 28, 1995.

GEOTHERMAL HEAT PUMP PROGRAM

WITNESSES

DAVID HATHERTON, VICE PRESIDENT, WATERFURNACE INTERNATIONAL

PAUL LIEPE, EXECUTIVE DIRECTOR, GEOTHERMAL HEAT PUMP CONSORTIUM

Mr. MYERS. The committee is now pleased to hear from Mr. Liepe and Mr. Hatherton, who will speak about the heat pumps, I believe. Is that right?

Mr. LIEPE. Yes, sir.

Mr. MYERS. Your prepared statements will be placed in the record and you may proceed for five minutes as you like.

Mr. LIEPE. Thank you very much.

Good morning, Mr. Chairman and members of the committee. My name is Paul Liepe and I am Executive Director of the Geothermal Heat Pump Consortium, or GHPC. GHPC is a new nonprofit organization composed of electric utilities, equipment manufacturers and their allies, the Department of Energy, the Environmental Protection Agency, and the Consortium for Energy Efficiency. Our collective goal is to increase the use of the most efficient and effective heating and cooling system available; namely, the geothermal heat pump.

GHPC understands that the committee receives numerous deserved requests for support; however, GHPC believes that we can offer a unique opportunity based on a unique technology and a unique partnership. The Geothermal Heat Pump Consortium, or GHPC, offers benefits to their users, to the local and national economy, to utilities, and to society.

GHPs increase the comfort of users while reducing their energy goals. The heat pump itself is a single sealed unit, making it highly reliable and has the lowest operating cost, according to a study by the Environmental Protection Agency. GHPs provide local employment opportunities while reducing the trade deficit. More than any other heating and cooling system, GHPs rely on local value-added services for installation.

Because of our country's leadership in the development and manufacture of GHPs, export of this technology, particularly to Canada, Europe, and the Middle East, can help improve our trade balance. As DOE Assistant Secretary Ervin told you, I believe two weeks ago, there are huge potential export markets for renewable energy technologies such as this.

GHPs reduce electric utility costs to provide service at both summer and winter peak times. They increase customer satisfaction and they help to alleviate the need for imported fuels, particularly Canadian natural gas, for use at the time of winter peak loads.

In addition, GHPC can be instrumental in achieving space heating and cooling market transformation. They can help create a new competitive standard for space encouraging conditioning, providing strong encouragement for efficiency improvement in all types of equipment.

The GHPC Consortium is a unique collaborative effort with the Department of Energy and the Environmental Protection Agency. GHPC members have committed to the program with the understanding that $65 million will be expended by industry, primarily the utilities, and $35 million by the Department of Energy. These expenditures will leverage an estimated $9 billion in private sector investment in this proven renewable energy technology.

GHPC members have committed to participate for the full six-year implementation provided there are no significant changes in Federal funding. A list of the GHPC members is included in my filed testimony.

GHPC will use competitive market forces to develop a self-sustaining market. We will attack more market penetration barriers to this technology; namely, reducing sometimes higher first costs, lack of customer and opinion leader awareness and the sparse infrastructure.

Increasing installation rates in a competitive market will lead to large cost declines. GHPC members look to the government for an opportunity for success rather than the government's more traditional role of command and control regulation. The participation and support of DOE and EPA has provided leadership, resources, and credibility to the program.

The subcommittee has a unique opportunity. The need to minimize Federal outlays should not blind us to the opportunity for short-term investment in this high value, high leveraged voluntary partnership. Last year leadership by this subcommittee brought authorization of $6.5 million for the program during fiscal year 1995. Our plan calls for a $9 million investment during fiscal year 1996. We ask for a specific DOE appropriation in that amount.

In summary, this is a unique opportunity to make Americans more comfortable in their homes and businesses; to contribute to job formation; to improve the balance of trade; to enhance the energy efficiency; to leverage Federal funds of $35 million to create $9 billion in private investment; to use market forces instead of regulation; and to demonstrate Federal leadership in mounting large, voluntary efforts.

All the members hope this testimony is of value to the committee and would be pleased to provide further information along that line.

With me today is one of our members. This is Mr. Dave Hatherton of Fort Wayne, Indiana, who would like to add a point.

[The statement of Mr. Liepe follows:]

Testimony of the Geothermal Heat Pump Consortium

Before the Subcommittee on Energy and Water Development
Committee on Appropriations • House of Representatives

March 28, 1995

INTRODUCTION

My name is Paul C. Liepe, Ph.D., and I am Executive Director of the Geothermal Heat Pump Consortium (GHPC). GHPC is a new, non-profit corporation composed of electric utilities and their associations, equipment manufacturers and their allies, the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the Consortium for Energy Efficiency. Our collective goal is to increase use of the most efficient and effective heating, cooling, and water heating system available -- the Geothermal Heat Pump.

GHPC understands that the Subcommittee receives numerous requests for support -- all of them deserving of your consideration. However, GHPC believes that it offers a unique opportunity based an a unique technology and a unique partnership.

UNIQUE TECHNOLOGY

Geothermal Heat Pumps or GHPs are a unique technology. They simultaneously offer benefits to their users, to the local and national economy, to utilities, and to society. They increase the comfort of users while reducing their energy bills. They provide local employment opportunities while reducing the trade deficit. They reduce electric utilities' cost to provide service. And they minimize the burning of fossil fuels, thus improving the environment.

Benefits to Users

Among the benefits GHPs offer residential and commercial users are:

- Comfort (higher air supply temperatures in colder weather)
- Reliability (simplicity, no exposure of system to weathering)
- No outdoor unit (reduced noise, better esthetics)
- Lowest operating cost (according to the Environmental Protection Agency)

Many GHP systems offer an opportunity to heat domestic water, providing additional operating cost savings.

Business and Economic Benefits

More than any other heating and cooling system, GHPs rely on local value-added services. A substantial, sometimes even dominant, fraction of the installed cost goes to local economies.

Because of our country's leadership in the development and manufacture of GHPs, export of this technology -- particularly to Canada, Europe, and the Middle East -- can help improve our trade balance. As DOE Assistant Secretary Ervin reported to you on March 14th, there are huge potential export markets for renewable energy technologies.

Benefits to Utilities

GHPs offer electric utilities increased customer satisfaction and business stability. Once the ground loop is installed, it is likely that a customer will continue to use it indefinitely, creating a satisfied customer willing to purchase service from the electric utility for an extended time. GHPs offer a flatter load profile, reducing the need for electric system construction while more efficiently utilizing existing facilities, and thus potentially lowering the cost of electricity sold. And they help to alleviate the need for imported fuels -- particularly Canadian natural gas -- for use at the time of winter peak loads.

Benefits to Society

According to an EPA report, *Space Conditioning : The Next Frontier*, GHPs rank in the uppermost range of equipment efficiency offerings. Under the regional electric utility generating fuel mix projected for 2000, GHPs will have lower carbon dioxide emissions than all other equipment.

In addition, GHPs can be instrumental in achieving space heating and cooling market transformation. As GHPs increase in both efficiency and market penetration, the overall efficiency of the space conditioning market improves. GHPs can help create a new competitive standard for space conditioning, providing strong encouragement for efficiency improvement in all other types of space conditioning equipment.

GHP systems typically require lesser quantities of refrigerant (usually HCFC-22) than standard air conditioners. GHP systems are typically sealed at the factory, and do not require field installation of pressurized refrigerant lines. The result is reduced leakage of refrigerants to the atmosphere.

Unlike some other types of heating and cooling systems, GHPs are virtually pollution free at the point of use. The modest amount of emissions that do occur are at the electric power plant, where emissions are vigorously controlled and monitored.

An additional benefit of this technology can be better controls on the emission of ozone forming compounds. GHPs can offer a means to reduce ozone formation while actually reducing customer energy costs and increasing customer convenience and comfort.

UNIQUE PARTNERSHIP

GHPC is a unique partnership. It is a collaborative effort with the U.S. Department of Energy and the U.S. Environmental Protection Agency. The partnership is unique because it is highly leveraged in favor of Federal agencies, because it is a voluntary effort by industry to meet Federal energy efficiency and emission reduction goals, because it will use market forces to develop a self-sustaining market, and because the government is providing leadership and the opportunity for success rather than command and control regulation.

Leverage

The GHPC's plan, embodied in an effort titled the **National Earth Comfort Program,** calls for the expenditure of $100 million through the year 2000. GHPC members have committed to the program with the understanding that $65 million will be expended by industry (primarily the utilities) and $35 million by the Department of Energy. These expenditures will leverage an estimated $9 billion in private-sector investment in this proven, renewable-energy technology.

Voluntary Effort

The **National Earth Comfort Program** is a consortium-led, cost-shared program. Each of its participants has committed to participate for the full six-year implementation provide there are no significant changes in Federal funding. A list of GHPC members, the industry volunteers, is attached.

Market Mobilization

The geothermal heat pump is a proven technology with a small number of installations occurring every year since the forties. Thus, funds to develop new science are generally not needed. Instead, GHPC plans to reduce the barriers to wide-scale user acceptance of this technology. Market penetration barriers to GHP technology are: GHPs cost $2,000 - $5,000 more in residential installations than conventional HVAC systems; the benefits and advantages of GHPs are generally unknown to customers and opinion leaders; and the infrastructure needed to reduce front-end costs and ensure user satisfaction exists only in a few places.

The GHPC, through the **National Earth Comfort Program**, will achieve its goals through implementing a set of focused, interrelated initiatives designed to address the three key barriers, namely:

1. **First-Cost Competitiveness**
   This initiative will develop innovative methods of financing the first-cost premium, examining methods such as leasing, innovative rates, energy-efficient mortgages, shared savings, and DSM incentives. Other tasks will entail actions to reduce the cost and time of installing ground loops through improved drilling methods, equipment, procedures, sizing, and grouting of loops.
2. **Technology Confidence Building**
   The initiative will undertake activities designed to increase awareness of the benefits of GHPs, and build confidence in the technology. A chief method will be to engage in as many as 12 cost-shared regional marketing program demonstrations with selected utility partners. Other activities include developing model marketing programs; supporting standards development; and encouraging GHPs through other EPA, DOE, and electric industry programs (e.g., "Energy Star," "Rebuild America" and "E Seal"). The initiative will develop and implement educational programs designed to reach key customers, opinion leaders, trade allies, and educational institutions.

3. **Infrastructure Strengthening**
   Significant increases in GHP sales require infrastructure strengthening. Regulatory changes may be needed to ensure appropriate protection of the below-ground environment. Dealer and installer training and possibly certification are needed to ensure quality installations. Design tools and sizing standards are needed. And in some cases model state legislation or regulation may be needed, upon request, to empower utilities to take an active role.

Some utilities are now supporting the installation of GHPs through consumer rebates and incentives -- an undesirable situation long-term. The ultimate objective is to create a self-sustaining market for GHPs, obviating the need for GHPC and utility and Federal funding. However, making this change in the market will require expenditures short-term.

Federal Leadership

The participation and support of the Department of Energy and the Environmental Protection Agency has provided leadership, resources, and credibility to the program. Without DOE and EPA leadership, it is unlikely that the industry would mount an operation of this scale. Government resources not only will accelerate the pace of achieving program goals, but will demonstrate that government is anxious to have advances be made by the private sector rather than through new regulation.

UNIQUE OPPORTUNITY

GHPC belives the Subcommittee has a unque opportunity. We understand the need to minimize Federal outlays. However, we also believe that short-term government investment in this high-value, high-leverage, high-technology program and voluntary partnership should not be overlooked.

Last year, this Subcommittee authorized $6.5 million for the program during fiscal year 1995 in DOE's appropriation. Your leadership has brought us into existence, and has encouraged more than 120 utilities, manufacturers, trade allies, and other organizations to participate. The utilities represent approximately half of the national market.

The National Earth Comfort Program calls for Federal support of $9 million during fiscal year 1996. We ask that the Subcommittee continuing its leadership by supporting the most cost-effective, energy-efficient heating and cooling technology -- bar none. We ask for a specific DOE appropriation of $9 million for GHPs during fiscal year 1996.

In short, this is a unique opportunity to:

- make Americans more comfortable in their homes and businesses,
- contribute to job formation locally and nationally,
- improve the balance of trade and reduce fuel imports,
- enhance the energy efficiency of heating, cooling, and water heating systems,
- reduce the emissions of greenhouse gases,
- leverage Federal funds of $35 million to create $9 billion in private investment,
- use market forces instead of regulation, and
- demonstrate Federal leadership in mounting large, voluntary partnerships.

We trust our testimony has been of value to the Subcommittee, and would be pleased to provide any further information that you may require.

No Federal funds were used in the preparation or presentation of this testimony.

GEOTHERMAL HEAT PUMP CONSORTIUM
As of March 21, 1995

UTILITY MEMBERS	STATES
Allegheny Power System	
Monongahela Power Co.	OH, WV
Potomac Edison Co.	MD, VA, WV
West Penn Power Co.	PA
Atlantic Electric	NJ
American Electric Power	
Appalachian Power Co.	VA, WV
Columbus Southern Power Co.	OH
Indiana Michigan Power Co.	IN, MI
Kentucky Power Co.	KY
Kingsport Power Co.	TN
Ohio Power Co.	OH
Wheeling Power Co.	WV
Baltimore Gas & Electric	MD
Black Hills Power & Light Co.	MT, SD, WY
Carolina Power & Light Co.	NC, SC
Centerior Energy Corporation	
Cleveland Electric Illuminating	OH
The Toledo Edison Company	OH
Central & South West	
Central Power & Light Co.	TX
Public Service Co. of Oklahoma	OK
Southwestern Electric Power Co.	LA, TX
West Texas Utilities Co.	TX
Central Hudson Gas & Electric	NY
Choctawhatchee Electric Cooperative	FL
Consumers Power Co.	MI
Delmarva Power	DE, MD, VA
Detroit Edison	MI
Duke Power	NC, SC
East Kentucky Power Corporation	KY
Entergy Corporation	
Arkansas Power & Light Co.	AK
Gulf States Utilities	LA, TX
Louisiana Power & Light Co.	LA
Mississippi Power & Light Co.	MS
New Orleans Public Service Co.	LA
General Public Utilities	
Jersey Central Power & Light Co.	NJ
Metropolitan Edison Co.	PA
Pennsylvania Electric Cop.	PA, NY
IES Utilities	IA

Interstate Power	IA, IL, MN
Jackson County REMC	IN
Kansas City Power & Light Co.	KS, MO
Kentucky Utilities Company	KY, TN, VA
Minnesota Power	MN
New England Electric System	
Granite State Electric Co.	NH
Massachusetts Electric Co.	MA
Narragansett Electric Co.	RI
New England Power Co.	MA
New York State Electric & Gas	NY
Niagara Mohawk	NY
Northeast Utilities	
Connecticut Light & Power Co.	CT
Holyoke Water Power Co.	MA
Public Service of New Hampshire	NH
Western Massachusetts Electric	MA
Northwest Rural Public Power District	NE
Oceana Electric Cooperative	MI
Oglethorpe Power Corporation	GA
Ohio Edison	OH, PA
Otter Tail Power Co.	MN, ND, SD
Pacific Gas & Electric	CA
PECO Energy	PA
Pennsylvania Power & Light Co.	PA
Plumas-Sierra Rural Electric Cooperative	CA
Potomac Electric Power Co.	DC, MD
PSI Energy	IN
Southern Company	
Alabama Power Co.	AL
Georgia Power Co.	GA
Gulf Power Co.	FL
Mississippi Power Co.	MS
Savannah Electric & Power Co.	GA
St. Joseph Light & Power	MO
Tampa Electric	FL
Tennessee Valley Authority	TN
TU Electric Co.	TX
Union Electric	IA, IL, MO
Virginia Power	NC, VA

UTILITY ORGANIZATIONS

Edison Electric Institute
Electric Power Research Institute
International Ground Source Heat Pump Association
National Rural Electric Cooperative Association

MANUFACTURERS AND TRADE ALLIES	FACILITIES
Addison Products Company	FL
ADM Associates, Inc.	CA, MD
Carrier Corporation	OK, NY
The Charles Machine Works, Inc.	OK
Climate Master	OK
Conservation Products International	FL
Earth Energy Loop Systems	MI
Econar Energy Systems Corporation	MN
Environmental Financial Services	VA
FHP Manufacturing	FL
Geo Thermal Plus, Inc.	KY
Geo-Air	TX
Geo-Flo Products Corporation	IN
Geofurnace Systems, Inc.	MI
GEOMET Technologies, Inc.	MD
Geothermal Energy Association	CA
Geothermal Technologies, Inc.	OH
Granger Heating & Cocling	OH
Ground-Source Heating & Cooling	OH
Harrell and Associates	PA
Heatac Energy Group	CA, LA, NJ, NY, PA
Hydro Delta Corporation	MO, PA
Hydro-Pump Company	NE
Hydro-Temp Corporation	AK
Jensen Well Company	NE
Logan Capital Company	CA
LSB Industries	OK
McQuay International	NY
New Jersey Heat Pump Council	NJ
Northeast Iowa Community College	IA
Ohio Geothermal Services	OH
Phillips Driscopipe	CA, KY, OK, PA, SC, TX
Process Improvement Engineering	OH
REEP Incorporated	NJ
Richard Stockton College of New Jersey	NJ
Ryan Service Company	OK
SAIC/The Fleming Group	NY
Southern Heating & Air Conditioning, Inc.	TN
The Trane Company	CO, GA, TX, WI
Thermal Energy Transfer Corporation	OH
USPower Climate Control	PA
Vanguard Plastics	KS, SC
Water and Energy Systems Corporation	ME
WaterFurnace International	IN
Winslow Pump & Well Inc.	MD

Mr. HATHERTON. I would just like to thank you, on behalf of the GHPC industry, Mr. Myers and Mr. Bevill, for your past support that we have received in getting it this far. Thank you.

Mr. MYERS. Thank you for your testimony.

Mr. BEVILL. Thank you.

[The statement of Mr. Hatherton follows:]

TESTIMONY OF DAVID HATHERTON

BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT APPROPRIATIONS

March 28, 1995

GOOD MORNING. THANK YOU FOR THE OPPORTUNITY TO APPEAR BEFORE THE SUBCOMMITTEE TODAY.

MY NAME IS DAVID HATHERTON, I AM A VICE PRESIDENT AT WATERFURNACE INTERNATIONAL. I AM APPEARING ON BEHALF OF THE PRESIDENT OF WATERFURNACE, DAN ELLIS, WHO COULD NOT BE HERE TODAY, WE'RE REPRESENTING MANUFACTURERS WHO ARE PART OF THE GEOTHERMAL HEAT PUMP CONSORTIUM.

WATERFURNACE IS BASED IN INDIANA AND IS THE LARGEST MANUFACTURER OF GEOTHERMAL HEAT PUMPS IN THE UNITED STATES. OVER THE PAST TWELVE YEARS, WE'VE INSTALLED MORE THAN 70,000 SYSTEMS WORLDWIDE WORTH OVER $700 MILLION. WE HAVE OVER 200 EMPLOYEES AT OUR MANUFACTURING FACILITY AND MORE THAN 2,000 PEOPLE EMPLOYED AS DEALERS AND INSTALLERS IN THE FIELD.

OUR SUCCESS IS WHAT DISTINGUISHES GEOTHERMAL HEAT PUMPS FROM OTHER RENWABLE ENERGY PROGRAMS. WE ARE NOT DEPENDENT UPON GOVERNMENT SUBSIDIES TO BE COMPETITIVE IN THE MARKETPLACE. WATERFURNACE AND OTHERS IN THE INDUSTRY HAVE SURVIVED AND GROWN AS MANUFACTURERS OF HEATING AND COOLING SYSTEMS FOR PRIVATE AND

COMMERCIAL USE.

THE BEAUTY OF A GEOTHERMAL HEAT PUMP SYSTEM IS THAT EVERY AMERICAN HAS ACCESS IN THEIR OWN BACKYARD TO THIS ENERGY SOURCE. GEOTHERMAL HEAT PUMPS RELY ON THE STORED ENERGY OF THE EARTH FOR HEATING AND COOLING. BY USING A SYSTEM OF PIPES BURIED IN THE GROUND, WATER OR COOLANT IS CIRCULATED TO GENERATE OR DISSIPATE HEAT. SYSTEMS ARE EXTREMELY ENERGY-EFFICIENT, QUIET, AND CLEAN.

WHILE THE INDUSTRY HAS ENJOYED STEADY GROWTH, IT HAS PRIMARILY BEEN FRAGMENTED UNTIL THE DEVELOPMENT OF THE GEOTHERMAL HEAT PUMP CONSORTIUM. THIS IS A WONDERFUL EXAMPLE OF HOW GOVERNMENT LEADERSHIP WITH A MINIMAL INVESTMENT, CAN PRODUCE AN ENORMOUS PAY OFF FOR THE AMERICAN PEOPLE.

RECENT STUDIES BY THE ENVIRONMENTAL PROTECTION AGENCY AND THE GENERAL ACCOUNTING OFFICE BOTH DETERMINED GEOTHERMAL HEAT PUMPS TO BE AN EXTREMELY VIABLE, ENVIRONMENTALLY FRIENDLY TECHNOLOGY THAT HAD THE POTENTIAL TO BE AN IMPORTANT METHOD FOR HEATING AND COOLING BUILDINGS.

THE GAO REPORT, WHICH WAS RESERVED IN ITS OUTLOOK FOR GEOTHERMAL ENERGY AS A COMMERCIALLY VIABLE SOURCE OF ELECTRICITY GENERATION SAID ABOUT GEOTHERMAL HEAT PUMPS:

> "GEOTHERMAL HEAT PUMPS ARE THE MOST ENERGY-EFFICIENT MEANS OF HEATING AND COOLING BUILDINGS IN MOST AREAS OF THE UNITED STATES. THEIR WIDER USE COULD CUT ENERGY COSTS, CONSERVE

> FOSSIL FUELS, AND REDUCE EMISSIONS. HOWEVER, THEIR USE TO DATE HAS BEEN LIMITED BECAUSE CONSUMERS, CONTRACTORS, INSTALLERS, AND UTILITIES ARE UNFAMILIAR WITH THE TECHNOLOGY; INSTALLATION COSTS ARE HIGH; AND NEITHER DOE NOR INDUSTRY HAS ACTIVELY PROMOTED THEM."

THE FORMATION OF THE GOETHERMAL HEAT PUMP CONSORTIUM IS THE FIRST STEP IN ADDRESSING MANY OF THOSE PROBLEMS. WITH DOE AS A FOCAL POINT, MORE THAN 70 UTILITIES REPRESENTING MORE THAN 50 PERCENT OF THE ELECTRICAL CONSUMERS IN THE UNITED STATES, HAVE SIGNED ON TO THE CONSORTIUM. WE NOW HAVE A VEHICLE FOR INCREASING CONSUMER AWARENESS AND FOR GENERATING COST SAVINGS THROUGH ECONOMIES OF SCALE THAT HAVEN'T PREVIOUSLY EXISTED.

WE ARE CONCERNED, HOWEVER, THAT DOE, IS NOT FOLLOWING THROUGH ON ITS COMMITMENT. AFTER SHOWING GREAT LEADERSHIP AND CREATING A PROGRAM WHEREBY WITH A 5 YEAR INVESTMENT OF $35 MILLION, DOE IS NOT FOLLOWING THROUGH ON ITS FINANCIAL COMMITMENT. WITH THAT $35 MILLION CONTRIBUTION, THE FEDERAL GOVERNMENT WILL LEVERAGE MORE THAN TWICE THAT IN CONTRIBUTIONS FROM UTILITIES WITH THE GOAL OF ACHIEVING $4 BILLION IN SALES OF OVER 400,000 SYSTEMS AND EMPLOYING 40,000 PEOPLE IN THE PROCESS. UNDER THE 5 YEAR PLAN OF THE CONSORTIUM, DOE'S CONTRIBUTION THIS YEAR WAS TO BE $9 MILLION. THEIR FY 96 BUDGET CALLS FOR HALF THAT AMOUNT.

MR. CHAIRMAN, WE ARE EXTREMELY GRATEFUL FOR THE TREMENDOUS SUPPORT YOU HAVE GIVEN THE GEOTHERMAL HEAT PUMP INDUSTRY IN THE PAST. AS YOU MAY RECALL, SOME OF YOUR INDIANA COLLEAGUES ARE ENTHUSIATIC USERS AND SUPPORTERS OF THE TECHNOLOGY AND YOU WERE

CRITICAL TO THE SUCCESSFUL LAUNCH OF THE CONSORTIUM LAST YEAR.

ON BEHALF OF GEOTHERMAL HEAT PUMP MANUFACTURERS, I URGE THE COMMITTEE TO PROVIDE FULL FUNDING FOR THE GEOTHERMAL HEAT PUMP PROGRAM. WE ARE CONCERNED THAT WHAT HAS BEGUN WITH TREMENDOUS PROMISE WILL FALL APART DUE TO LACK OF CONFIDENCE IN DOE'S COMMITMENT TO THE PROGRAM. WE WILL BE THROWING AWAY MORE THAN $70 MILLION IN UTILITY COMPANY INVESTMENT IN DEVELOPING THIS TECHNOLOGY.

TUESDAY, MARCH 28, 1995.

LIFE SCIENCE RESEARCH PROGRAMS

WITNESS

SAMUEL C. SILVERSTEIN, PRESIDENT, FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

Mr. MYERS. The committee will now hear from Samuel Silverstein, President of the Federation of American Societies for Experimental Biology.

Would the young people identify who you are visiting the committee here?

Ms. WOODWARD. Hi. My name is Lindsay Woodward and we are from Colorado, Denver.

Mr. MYERS. You are visiting your government, thank you. You are with the rest of your family?

Ms. WOODWARD. That is my sister Mary and brother Billy.

This is my dad, John.

Mr. MYERS. The things we do or don't do will affect them longer than the rest of us.

Now Dr. Silverstein. Thank you for yielding to the young people.

Mr. SILVERSTEIN. I appreciate that.

Mr. Chairman, Mr. Bevill, it is a pleasure to be here. I am here to represent the Federation of American Societies for Experimental Biology, 42,000 professional scientists practicing at the universities, research institutes, government laboratories, industrial companies throughout the United States. Our members conduct basic research in the biomedical and related life sciences. I am also professor and chairman of the Department of Physiology at Columbia University in New York.

I am here to speak on behalf of the life sciences and research that the DOE does. My colleagues and I would specifically like to commend the Department of Energy for the peer review competitive research grants program that it conducts. As you know, peer review is the best way to select the best research.

You have my written testimony. I would like to make a few general points.

Mr. MYERS. Your complete statement will be placed in the record.

Mr. SILVERSTEIN. It is evident from my written testimony in which I recommend a 10 percent increase in support for DOE life sciences research programs that my colleagues and I think very highly of them. I especially want to focus on special contributions that the national laboratories make to the human genome project, and to a relatively new field called structural biology.

The human genome efforts is on or below budget and ahead of schedule. That is a remarkable accomplishment. This is no small measure due to the contributions of National Laboratories. They play a special role because of their commitment to technology development and instrumentation and reagents created have made it possible for many scientists to work together.

For example, the DNA of the human genome contains 3 billion individual subunits. I have a little chart here. There are four colors and four different subunits. These 3 billion subunits, and if I may take a page out of Everett Dirksen's book, 3 billion is a big number. These are packaged in 23 units called chromosomes.

Each of the 70,000 genes that provide the blueprint for the human body is composed of several thousands of these subunits arranged in a different but specific order. Each gene is located at a specific site on only one of the 23 chromosomes. The goal of the human genome effort is to identify the location of each gene on each chromosome and to identify the sequence of the DNA subunits that comprise each gene.

The Lawrence Livermore Laboratory and the Los Alamos Laboratory have generated what are termed COSMID libraries, pieces of DNA that contain about 50,000 of these individual subunits. These pieces of DNA are exact copies of every portion of ever human chromosome. Moreover, the Lawrence and Los Alamos Laboratories have used their special expertise in robotics to identify the order of these pieces of DNA along the chromosome. Thus the national laboratories support the human genome effort by their expertise in the physical sciences.

The much larger genome effort supported by the National Institutes of Health provides the medical and biological focus. The two programs complement one another beautifully, accomplishing by their cooperation and integration what neither program could achieve on its own.

In the last few years, we have seen the identification of genes that predispose to colon, breast, and renal cancers, among others. If we stay the course, in less than a decade, we will know the genetic blueprint for the human body. The availability of this blueprint will substantially increase the speed of discovery in the life sciences and enhance our understanding of the pathogenesis of many diseases which are today mysterious. This information will benefit every human being on earth.

Mr. Chairman, I congratulate this committee and the Congress on their courage and conviction in initiating the genome effort. You should take a great sense of pride and pleasure in your special participation in this historic undertaking.

The second area to which I wish to direct special attention is structural biology. This is a field that has seen explosive development in the last decade again, in no small measure due to the special facilities provided by the national labs, especially Argonne and Brookhaven.

Structural biology reflects the marriage of physical and biological science. Structural biologists use the tools of physics to revolve the atomic structure of large biological molecules such as proteins and DNA. This photograph shows the atomic structure of a molecule called a acetylcholinesterase. This is a protein present in almost every nerve ending in your system. It plays a key role in turning off nerve signals. It is the target of many insecticides and nerve toxins.

By studying interactions of this enzyme with the neurotransmitter acetylcholine, the little green molecule here, we learn how the molecule works and how it regulates the amount of acetylcholine. We learn how to design drugs that can inhibit its function. Drugs that interact with acetylcholinesterase are being tested for the treatment of Alzheimer's disease and for myasthenia gravis.

To study these interactions, structural biologists use highly sophisticated instruments such as high flux neutron beams, synchrotron generated light sources and scanning transmission electron microscopes. These instruments are too costly and complex to be housed and maintained at any single university.

Their availability at the National Laboratories allows them to be shared by many scientists for many different universities. For example, in 1995, 112 scientists at 73 institutions will use the Argonne synchrotron and 225 scientists from 150 institutions, not just universities, but companies, private industry, will use the structural biology facilities at Brookhaven.

Today we know the structure of only a small number of proteins. Already the proteins whose structures have been solved provide us with insights into some unifying principles. We have learned that nature uses certain structures repeatedly for certain purposes, and that proteins have specialized parts. This knowledge allows us to make good guesses about the function of certain proteins from their structure and to use this information to design highly specific drugs that alter the functions of these proteins.

DOE support for genomic mapping and DNA sequencing is giving us an encylopedia of the master blueprint for humans. DOE support for structural biology is giving us a picture of the ways the molecules of life fits together and function together.

Mr. MYERS. If you could summarize quickly.

Mr. SILVERSTEIN. I hope it is evident from my testimony that the resources, expertise and technology provided by the national labs for life sciences research are not duplicative of those provided by any other agency. The national labs are national treasures and their contribution and the scientists at them contribute unique skills and perspectives to American science.

Thank you.

[The statement of Mr. Silverstein follows:]

FASEB FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

The American Physiological Society
American Society for Biochemistry and Molecular Biology
American Society for Pharmacology and Experimental Therapeutics
American Society for Investigative Pathology
American Institute of Nutrition
The American Association of Immunologists
The American Society for Cell Biology
Biophysical Society
American Association of Anatomists

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FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY (FASEB)

TESTIMONY BY

SAMUEL C. SILVERSTEIN, MD
President of FASEB

Before

House Energy and Water Development Subcommittee
on Appropriations

March 28, 1995

10:55 A.M.

Mr. Chairman and Members of the Subcommittee:

I am Dr. Samuel C. Silverstein, President of the Federation of American Societies for Experimental Biology (FASEB), an organization of nine scientific societies in the biomedical research field. The 42,000 members of our Societies conduct biomedical and life science research at major universities, research institutes, and government laboratories in the U.S. I also am John C. Dalton Professor and Chairman of the Department of Physiology and Cellular Biophysics at the Columbia University College of Physicians and Surgeons in New York City.

> **FASEB recommends $157 million (a 10% increase) for the Department of Energy's Health Effects and Life Sciences Division in FY 1996. It also recommends $28.6 million (a 10% increase) for the Energy Biosciences Division in the next fiscal year.**

The U.S. Department of Energy (DOE) fills a special role in biological research by its multidisciplinary approach and support of specialized facilities used by scientists nationwide. Shifting its emphasis away from national defense, DOE is directing more of its research toward alternative energy sources, global change, economic competitiveness, technology transfer, and life sciences research. The new missions in the life sciences include research on the health effects of environmental agents, renewable fuels and chemical production, and large–scale, technologically based endeavors such as mapping and sequencing the human genome. This shift in focus should be seen in an increased priority for biological research within the DOE budget and at the National Laboratories.

DOE life science research is conducted primarily through two offices: the Office of Health and Environmental Research (OHER) and the Office of Basic Energy Sciences (BES). The activities of OHER are subdivided into three divisions that have a mission–oriented perspective: (1) Health Effects and Life Sciences Research, (2) Environmental Sciences, and (3) Medical Applications and Biophysical Research. OHER sponsors the majority of its life sciences research through the Health Effects and Life Science Research Division. Approximately 65% of OHER's budget funds research at the National Laboratories and about 35% supports extramural research.

Approximately 380 life sciences research projects were funded by the OHER in FY 1994. Of these, about 60 were new or competing. The number of funded research projects in FY 1995 is projected to be about the same as in FY 1994. Approximately 20 percent of the life sciences research applications reviewed by OHER receive funding.

FASEB commends DOE for using peer review for its research applications. The National Laboratories provide a unique setting for multidisciplinary team approaches, specialized facilities and new applications for fundamental biological research. The user facilities at the National Laboratories are available to the scientific community and thus are important national resources. For example, 112 scientists at 73 institutions will use the Argonne synchrotron in 1995. To improve the efficiency of research at the National Laboratories, there should be a decrease in the regulations surrounding their use.

Within BES, the Energy Biosciences Division (EBD) budget supports fundamental research in molecular biology and microbiology. Eighty-five percent of the Energy Biosciences Division budget funds extramural research. However, in FY 1993, the division funded only 12 of the 246 new proposals submitted for peer review (5%). In FY 1994, the division funded 15% of the 139 new proposals submitted. BES uses a system of "preproposals" to screen prospective projects prior to formal applications and peer review. Fluctuations in the rate of funded proposals may reflect variations in the screening of proposals.

Some of the life sciences programs at DOE collaborate with those of other federal agencies, and there appears to be very good interagency coordination on these joint efforts.

Recent Accomplishments

Significant advances are being made in the four programs of the Health Division of OHER: Health Effects Research, Structural Biology, Molecular and Cell Biology, and the Human Genome. Let me cite examples of these accomplishments:

* Health Effects Research: The world's first Microbeam Irradiator for irradiating cells with discrete low doses (a single alpha particle) has been developed at the Pacific Northwest Laboratory. By targeting the nucleus or cytoplasm of an individual cell with the lowest possible dose, scientists expect to learn considerably more about mechanisms and effects of low dose radiation.

Oak Ridge National Laboratory is a world center for mouse genetics and application of molecular techniques to generate mouse models for human diseases. Using insertional mutagenesis, scientists at Oak Ridge have located a gene in mice that may lead to treatment of fatal polycystic kidney disease in humans. Lawrence Livermore Laboratory has just developed mouse chromosome painting probes, which will allow study of the induction of chromosome alterations following exposure to chemicals or radiation.

These resources are available to scientists throughout the United States by contacting DOE and the principal investigators for these projects.

* Structural Biology: Structural biology facilities are under construction at the new synchrotrons at the Lawrence Berkeley Laboratory and the Argonne National Laboratory. In addition, new structural biology beamlines have been constructed at the National Synchrotron Light Source at the Brookhaven National Laboratory and at the Stanford Synchrotron Research Laboratory. These new facilities represent a significant addition to our national capacity to solve macromolecule crystal structures, a growing component of academic and commercially oriented biological research. Recently, crystallography has provided insights about P450 (a group of oxygen-utilizing enzymes that are important in bioremediation and detoxification of wastes). Optimum use of these facilities will require more staff and computational resources.

- Molecular and Cell Biology: DOE's new microbial genome initiative was recognized for its potential basic research opportunities and commercial applications in environmental cleanup, pollution prevention, and energy production. Enzymes from bacteria that live in extreme conditions have great potential for various industrial purposes.

- Human Genome Program: The National Laboratory Gene Library Project is a joint endeavor of the Los Alamos and Livermore National Laboratories. It prepares chromosome–specific DNA libraries for all human chromosomes and makes these available to the scientific community. Previously both laboratories had prepared phage insert libraries for all human chromosomes; the libraries are available through the American Type Culture Collection in Rockville, Maryland. The two laboratories have now completed cosmid libraries for all chromosomes and will soon announce arrangements for their distribution. These libraries have found use in genome mapping projects around the world.

  The key objective of BES is to discover basic information about plants and microorganisms relating to energy. In a parallel activity, photosynthesis research in the Chemical Sciences Division focuses on understanding the physico–chemical mechanism of photosynthesis, with one goal being renewable resource production of fuels and chemicals. Understanding how microorganisms convert sulfur in petroleum, which allows purification prior to combustion, is one of many advances BES grantees have made that has led to industrial applications.

Recommendations

The total budget for the Health Effects and Life Sciences Research Division of OHER was $142.7 million in FY 1995, an increase of only $1.4 million (1%) over the FY 1994 budget of $141.3 million. Two of the four divisions (Health Effects Research and Molecular and Cell Biology) actually lost funding over this period. **The Conferees recommend $157.0 million (a 10% increase) for the budget of the Health Effects and Life Sciences Division in FY 1996.** Almost half of this increase is necessary to keep up with inflation over the last two years. The balance of the increase is needed to fund new initiatives and expand promising activities, such as a computational center, operating costs for expanded facilities, and the new microbial genome initiative.

The budget for the Energy Biosciences Division of BES was $25 million for FY 1994 and $26 million for FY 1995. While the Energy Biosciences Division budget is small relative to that of Health Effects and Life Sciences Research Division, it is notable that about 18% of extramural basic plant biology research in our nation is funded by Energy Biosciences Division (a significant contribution to biological science is also made by the Division of Chemical Sciences). **The Conferees recommend $28.6 million (a 10% increase) for the Energy Biosciences Division budget in FY 1996, with the expectation that these additional monies will allow the funding of more new grants.**

Mr. Chairman, that concludes my testimony. My statement includes a table providing a comparison of FASEB's FY 96 funding recommendations with appropriations levels for the two previous fiscal years. I will be pleased to answer your questions.

TABLE 5: DEPARTMENT OF ENERGY
Life Sciences Funding and FASEB Recommendations
Fiscal Years 1994 -- 1996 [Dollars in Millions]

Program	FY 1994	FY 1995	FY 1996	
	Appropriation (Actual)	Appropriation	FASEB Recommendation	% Change from FY 95
Health Effects & Life Sciences Research Division[1]	$141.300	$142.700	$156.970	10.0%
Health Effects Research	$37.800	$36.400		
Structural Biology	$17.000	$18.600		
Molecular & Cell Biology	$21.500	$20.300		
Human Genome	$65.000	$67.400		
Energy Biosciences Division Sciences[2]	$25.000	$26.000	$28.600	10.0%
Total Selected Life Sciences,[3] DOE	$166.300	$168.700	$185.570	10.0%

Notes:

1. The Health Effects and Life Science Research Division is within the Office of Health and Environmental Research.
2. The Energy Biosciences Division is within the Office of Basic Energy Sciences.
3. Funding levels are based on program operating budgets, and do not include capital equipment or construction budgets for these program areas.

FASEB

Federation of American Societies for Experimental Biology

The American Physiological Society (APS)
American Society for Biochemistry and Molecular Biology (ASBMB)
American Society for Pharmacology and Experimental Therapeutics (ASPET)
American Society for Investigative Pathology (ASIP)
American Institute of Nutrition (AIN)
The American Association of Immunologists (AAI)
The American Society for Cell Biology (ASCB)
Biophysical Society
American Association of Anatomists (AAA)

Consensus Conference on FY 1996 Federal Research Funding in the Biomedical and Related Life Sciences

Report

Federation of American Societies for Experimental Biology

Consensus Conference on FY 1996 Federal Research Funding in the Biomedical and Related Life Sciences

Report

For copies of this report contact:
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Executive Summary

Biomedical research is an important national resource that has enormous significance for the health and prosperity of all Americans. This report summarizes the recommendations of the Federation of American Societies for Experimental Biology (FASEB) Consensus Conference on Federal Research Funding in the Biomedical and Related Life Sciences. It was prepared by representatives of the Federation's nine member societies, including scientists from universities, industry, and government from all parts of the nation. They met in Bethesda in October 1994 to review research programs and policies in basic and applied medical sciences and in biology at eight Federal agencies.

General Policy Recommendations

Conferees recommend that U.S. spending on nondefense R&D increase to 3% of the gross domestic product, with a significant portion of the increase devoted to basic and applied research in biology and the medical sciences. They reaffirm their support for peer review because it makes scientific merit and opportunities for significant advances the criteria for research funding decisions. Earmarking deprives the public of the assurance that scarce research funds are going to the most meritorious projects.

National Institutes of Health

The Conferees recommend a $12.459 billion budget for NIH in FY 1996 (a 10% increase), in order to seize opportunities presented by recent advances in neurosciences, cardiovascular medicine, cancer research, and molecular genetics. FASEB recommends an increase of 14% in funding for research project grants. This increase will allow NIH to fund a larger percentage of the meritorious proposals that it receives, which for new, unsolicited research grants has fallen to an all time low of 15%. FASEB concurs with the National Research Council recommendations to maintain the current number of basic biomedical sciences training positions with an increase in stipends to $12,000 per year for predoctoral trainees, and to $25,000 per year for postdoctoral trainees. Such increases are needed to ensure that the highest quality individuals are attracted to careers in biomedical research. FASEB also recommends increases in the Director's Fund and in the Shared Instrumentation Grant Program, and commends Dr. Varmus for outstanding leadership of NIH.

National Science Foundation

The Directorate of Biological Sciences (BIO) at NSF has supported a substantial portion of the Nation's most significant investigator–initiated, fundamental research in the life sciences. The Conferees recommend that NSF increase the number and size of grants over a five–year period. For FY 1996, they urge funding for 2,950 grants with an average award of $110,000, and an overall budget for BIO of $389.1 million.

Department of Energy

DOE performs a special role in biomedical research by virtue of its multidisciplinary approach and its support of specialized facilities, which are shared by scientists across the nation. Conferees recommend $157.0 million in funding for the Health Effects and Life Sciences Research Division and $28.6 million for the Energy Biosciences Division. These recommendations represent increases of 10% over FY 1995.

Veterans Administration

During the last decade, the budget for VA research failed to keep pace with inflation, resulting in missed opportunities for research relating to veterans' health, declining research infrastructure, and insufficient opportunities for research career development. To reverse this trend, Conferees urge an appropriation of at least $296 million in FY 1996 for the VA Medical and Prosthetic Research Program, an increase of 8.8% over FY 1995.

Department of Agriculture

The National Research Initiative (NRI) is the only peer–reviewed research program sponsored by USDA. NRI furthers the USDA mission to ensure an abundant, safe, and wholesome supply of food and fiber, and promote the competitive position of U.S. agriculture. Conferees recommend increasing the NRI appropriation over four years to reach the $500 million level recommended in the National Research Council report on agricultural research. As a first step, FASEB suggests increasing NRI's budget from $103.1 million in FY 1995 to $182 million in FY 1996.

National Aeronautics and Space Administration

The Conferees commend NASA for the improvements in its peer–review mechanism, and for its collaborations with NIH. They recommend that NASA transfer all of its life sciences research activities to the Life and Biomedical Sciences and Applications Division, the Life Sciences budget be restored to the FY 1994 level of $53.8 million, and funding for NASA–NIH collaborative research be increased from $15 million to $20 million, with at least $10 million being allocated to the Life and Biomedical Sciences and Applications Division.

Environmental Protection Agency

EPA must strengthen its base in fundamental science in order to identify sound solutions to environmental problems and to enable the Agency to develop more effective regulatory policies. The Conferees note several positive steps that EPA has taken in this direction in the past year. They recommend that EPA restore health research grants, place greater reliance on investigator– initiated, externally peer–reviewed research than on cooperative agreements, and reduce the administrative burden carried by intramural scientists. To support these recommendations, the Conferees recommend that the budget of the Office of Exploratory Research be increased to $120 million in FY 1996.

Department of Defense

The mission of the armed forces requires specialized, research-driven approaches to treatment of injury, prevention of disease, and promotion of health. This research protects service personnel, and also benefits the civilian population. The Conferees support initiatives to coordinate health-related research across Federal agencies and to integrate civilian and military research wherever possible, with emphasis on peer-reviewed, fundamental science. The Conferees, however, received insufficient information from the agency to make specific budgetary recommendations.

Summary of Funding Recommendations

TABLE 1: BIOMEDICAL AND RELATED LIFE SCIENCES RESEARCH
Appropriations Summary and FASEB Recommendations
Fiscal Years 1994-1996 (Dollars in Millions)

Agency and Program	FY 1994	FY 1995	FY 1996	
	Appropriation	Appropriation	FASEB Recommendation	% Increase from FY 95
National Institutes of Health All Institutes, Centers, & Divisions	$10,937.653	$11,328.307	$12,458.938	10.0%
National Science Foundation Directorate for Biological Sciences	$288.780	$314.890	$389.110	23.8%
Department of Energy Division of Health Effects and Life Sciences Research, and Division of Energy Biosciences	$166.300	$188.700	$185.570	10.0%
Department of Veterans Affairs Medical and Prosthetic Research Account	$252.000	$272.000	$296.000	8.8%
Department of Agriculture National Research Initiative	$105.400	$103.100	$182.000	78.5%
National Aeronautics and Space Administration Life and Biomedical Sciences Applications Division, Research and Analysis	$53.800	$50.700	$53.800	6.0%
Environmental Protection Agency Office of Exploratory Research	$30.000	$60.000	$120.000	100.0%
Department of Defense Armed Services Biomedical Research and Evaluation Mgt. (ASBREM) Committee Programs	$439.400	$673.400	None	NA

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Introduction

Investment in biomedical research is an investment in the future health and prosperity of the Nation. Because of the discoveries made by biomedical researchers in previous decades, we live longer, healthier, and more active lives. Today, the average life expectancy of an American is 75.5 years, an increase of almost five years since 1970.[1] This increase is in part due to advances in our understanding of basic molecular and cellular processes. Tremendous progress has been made, and new discoveries are extending our ability to prevent, diagnose, and cure disease. We are on the threshold of major breakthroughs in many areas of research. Much has been accomplished, but much more needs to be done. Important discoveries are taking place in the Nation's university, government, and industrial laboratories. These biomedical advances reduce health care costs and could lead to an ongoing stream of new treatments and cures for widespread and chronic illnesses.[2]

In addition to improving the Nation's health, biomedical research has had a substantial impact on our economy. The creative energies of U.S. biomedical researchers have created a new and dynamic industry — the biotechnology industry — in which advances are already contributing to the solution of major agricultural and environmental as well as health problems. The U.S. is the acknowledged leader in biotechnology. In 1993, there were over 1,300 small– and medium–sized biotechnology companies. They provided over 103,000 high paying, high skill jobs (a 6% increase over last year) and have an estimated market value of $41 billion dollars.[3] In 1992 and 1993, these biotech firms raised more than $11.5 billion in new, external capital financing.[4]

The U.S. pharmaceutical industry has invested heavily in biotechnology. The pharmaceutical industry employs over 350,000 Americans[5] and is one of our Nation's most competitive industries with an estimated trade surplus in 1993 of almost $1.4 billion.[6] Other industries are also beginning to exploit the discoveries of biomedical research and biotechnology. Agricultural and environmental applications of biotechnology are now in wide use.

> ***"The growth of biotechnology as an industry over the past 15 years is truly stunning . . . The tremendous growth in private biotechnology investment is no accident. Federal support for biomedical R&D, technology transfer policies, and strong intellectual property protection have created an environment conducive to discovery and commercialization of new therapeutic advances."***
> Roger C. Herdman. (June 24, 1994) *The Biotechnology Industry: Office of Technology Assessment Testimony before the Joint Economic Committee.*

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[1] National Center for Health Statistics. (1994) *Monthly Vital Statistics Report* 43, Number 13, Table 7.

[2] Kirschner, Marc W., Marincola, Elizabeth and Teisberg, Elizabeth Olmstead. (October 7, 1994) "The Role of Biomedical Research in Health Care Reform." *Science* 266: 49–51.

[3] Lee Jr., Kenneth B. and Burrill, G. Steven. (1994) *Biotech 95: Reform, Restructure, and Renewal. The Ernst & Young Ninth Annual Report on the Biotechnology Industry.* Palo Alto, CA. Ernst & Young.

[4] Herdman, Roger. (June 24, 1994) "The Biotechnology Industry: Office of Technology Assessment Testimony Before the Joint Economic Committee."

[5] Pharmaceutical Research and Manufacturers of America. (1994) *Annual Survey Report.* Washington, DC: PhRMA.

[6] Pharmaceutical Manufacturers Association. (1993) *The Case for the Pharmaceutical Industry.* Washington, DC: PMA.

"A commitment to research in the budget request is needed — the willingness to make the hard choices to reduce funding for lower priority programs to provide the necessary increases in high priority areas like biomedical research."

Representatives John Porter, Bill Young, Henry Bonilla, and Helen Bentley. (February 22, 1994) *Letter to Hilary Rodham Clinton.*

These successes are examples of the uniquely successful partnership among universities, industry, and government. Future progress will depend on continued investment by all three sectors. The U.S. currently lags behind several of its economic competitors in the fraction of gross domestic product devoted to nondefense research and development.[7] We recognize, however, that we are in an era of fiscal constraint and competing demands. Americans in all walks of life must carefully husband their resources. As citizens and as scientists, we must do our part to ensure that our institutions — university, industry, and government — operate as efficiently as possible. Only the most meritorious projects should be supported. Only the most productive and demonstrably effective programs should receive increased funding. Our highly competitive system of peer–reviewed grants and the budgetary constraints of the last five years have eliminated all but the very best programs and investigators. This report provides a realistic appraisal of the Federal investment needed to maintain progress and make optimal use of new opportunities to improve the health of Americans through biomedical research.

This report summarizes the recommendations of the fifth annual Federation of American Societies for Experimental Biology (FASEB) Consensus Conference on Federal Research Funding in the Biomedical and Related Life Sciences. It was prepared by representatives of the nine member societies of the Federation, including scientists from universities, industry and government from all parts of the nation, who met in Bethesda in October 1994 to review research programs in basic and applied medical sciences and in biology at eight Federal Agencies: The National Institutes of Health, National Science Foundation, Department of Energy, Veterans Administration, Department of Agriculture, National Aeronautics and Space Administration, the Environmental Protection Agency, and the Department of Defense. Conferees worked in subgroups to examine the programs, practices, and budgets of each of the eight agencies and to prepare reports describing their findings. The reports of each of these subgroups were reviewed and amended by all Conferees.

In addition, the Conferees adopted the following series of research policy recommendations on issues that transcend individual agencies:

- **Science Investment:** FASEB recommends an increase in U.S. spending on R&D from the current 2.6% of gross domestic product (GDP) to 3%. A significant portion of the additional funds should be devoted to basic and applied research in biology and the medical sciences, beginning with an initial increment of $2 billion and reaching $6 billion in five years.

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[7] National Science Board. (February, 1994) *Toward the Next Century: The State of U.S. Science and Engineering.* Washington, DC: National Science Foundation.

- **R&D Policy Principles:** FASEB supports the R&D Policy Principles advanced by the National Science and Technology Council (NSTC), particularly the first three: emphasis on peer review, investment in human resources, and investment in fundamental science.

- **Peer Review:** FASEB supports the peer–review system (as exemplified by peer review mechanisms at the National Institutes of Health and National Science Foundation) for the distribution of R&D funds, because it provides for the best possible scientific work based on merit review. The practice of earmarking funds for specific projects circumvents this process and deprives the public of the assurance that scarce Federal funds are going to the best science. We are in full agreement with NSTC in its support of the principle of peer–review.

- **Earmarking:** FASEB opposes Congressional earmarking of monies for the construction of research facilities. FASEB advocates that all Federal funds for facilities be awarded through competitive, peer–reviewed grant programs.

This final document is endorsed by FASEB's Public Affairs Executive Committee, the body charged with setting public policy for the Federation.

Introduction

> ***"[Earmarking] is a process that undermines the existing system of peer and merit review. Just as importantly, earmarks are beginning to eat into the base programs of the Federal agencies we rely on for our scientific expertise. Finally, earmarking gets some of our agencies far afield from their institutional mandate."***
>
> Representative George E. Brown. (1992) *Academic Earmarks: An Interim Report by the Chairman of the Committee on Science, Space, and Technology.* Washington, DC: U.S. House of Representatives.

National Institutes of Health

Agency Mission

The National Institutes of Health (NIH) is the principal biomedical research agency of the Federal Government. Through the conduct, support, and promotion of biomedical research, NIH pursues science to expand fundamental knowledge about the nature and behavior of living systems, and applies that knowledge to improve health, extend lives, and reduce the burdens resulting from disease and disability. NIH supports the work of more than 50,000 scientists at 1,700 institutions across the United States. The research supported by NIH makes important contributions to the Nation's economy and its competitive standing internationally. NIH is by far the largest supporter of both fundamental and applied biomedical research in the country and dwarfs all other sources of funding in this field.

Recent Accomplishments

The U.S. leads the world in biomedical research by all available indicators. A reflection of this excellence is that U.S. citizens have won the Nobel Prize in Medicine or Physiology 71 out of 157 times, more than any other nation. The 1994 award went to two U.S. researchers, Alfred G. Gilman and Martin Rodbell. Gilman's work was supported by over $6 million in NIH grant; Rodbell did most of his prize-winning work at NIH.

In 1993, grants from NIH contributed to over 95% of the discoveries listed by *Science News* in its year-end highlights of biomedical research. Outstanding accomplishments by scientists supported by NIH grants during FY 1994 include:

- **Cloning a Breast Cancer Susceptibility Gene** A team of university scientists supported by NIH grants and NIH staff scientists reported the cloning of a breast cancer susceptibility gene called BRCA1. Mutations in this gene are believed to be responsible for half of all hereditary breast cancers (which account for 5 to 10% of all breast cancers). Some researchers predict that diagnostic tests for *BRCA1* mutations could be available before 1996

- **Genetic Mutations Lead to Colon and Other Cancer** Colorectal cancer is one of the most common cancers diagnosed in the U.S. Investigators have recently identified four genes that, when mutated, are responsible for more than 90% of hereditary colorectal cancer

- **A Drug Designed to Switch Genes On and Off** Scientists have redesigned an immunosuppressant drug known as *FK506* into a family of molecules

> ***"Frequently I am asked in meetings, 'tell me something about government that has worked,' and I repeatedly talk about science and technology spending and the National Institutes of Health."***
> Laura Tyson. (November 22, 1994) Address at National Academy of Sciences Forum: "Meeting the Challenge: Health, Safety, and Food for America". Cited in *Washington FAX*, November 30, 1994.

able to either turn on or turn off the production of proteins in genetically engineered cells

- **Melanoma Susceptibility Gene** Researchers have identified a key piece in the puzzle of melanoma, the most deadly skin cancer. They discovered that mutations in a gene called *p16*, which normally suppresses tumor growth, can be passed on from one generation to the next
- **Role and Structure of Tumor Suppressor Protein (*p53*)** Mutations or deletions of a protein known as *p53* are involved in up to half of all human cancers. Now NIH supported scientists are unraveling the complex mechanism for the anti–tumor activity of p53
- **Inhibiting Growth of the AIDS Virus (*HIV-1*)** Scientists have recently identified a factor from saliva that inhibits *HIV-1* growth in cultured cells
- **Reducing the Rate of Maternal-Fetal HIV Transmission** Results from an international AIDS clinical trial have shown that *Zidovudine* (AZT) therapy reduces HIV transmission from mother to infant by approximately 67%, when both receive treatment
- **Angioplasty Is a Viable Alternative to Bypass Surgery** An NIH–sponsored clinical trial has demonstrated that patients who receive balloon angioplasty, a procedure that widens diseased coronary arteries by inflation of a balloon-tipped catheter, experience no more deaths, heart attacks, or ischemia (reduced blood flow to the heart) than similar patients who receive coronary artery bypass surgery
- **Effective Medication for Treating Alcoholism** Clinical trials have shown that naltrexone, an orally active opiate antagonist, was highly effective in reducing both alcohol craving and alcohol consumption
- **Treatment to Reduce Brain Hemorrhage in Very Low Birthweight Babies** An estimated 20 to 40% of very low birthweight infants are at risk for bleeding in the brain, which is known as intraventricular hemorrhage (IVH). Researchers have recently achieved an important advance in preventing IVH in very low birthweight babies treated within 6-12 hours of birth with the drug indomethacin
- **Recombinant Vaccine Protects Monkeys Against Hepatitis E Disease** Immunization of cynomolgus monkeys with a recombinant hepatitis E virus (HEV) protein protected the animals completely against hepatitis E disease and partially against infection. These observations establish the feasibility of developing a hepatitis E vaccine for humans

> ***"Yet the pursuit of curiosity about the basic facts of nature has proven throughout the history of medical science to be the most practical, the most cost–effective route to successful drugs and devices. Investigations that had no practical objective have yielded most of the major discoveries of medicine: X–rays and penicillin, the polio vaccine and monoclonal antibodies, genetic engineering, and recombinant DNA."***
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> Arthur Kornberg. (1992) "Basic Research: the Lifeline of Medicine." *FASEB Journal* 6: 3143– 3145.

- **Slow-Release Fluoride Offers Hope for Treating Osteoporosis** An ongoing NIH sponsored clinical trial offers hope of a new means to slow or possibly reverse the osteoporosis that affects about 25 million Americans, particularly older women

- **A Rapid Way to Find New Drug Candidates** A new process, Systematic Evaluation of Ligands by Exponential Enrichment (SELEX), can be used to discover RNA sequences that will bind to any target molecule. This process offers novel approaches for a variety of diagnostic and therapeutic purposes.

Research Grants

Individual investigator–initiated research project grants are a uniquely American invention, and are the engines of progress in the biomedical sciences. They are the major NIH mechanism for funding biomedical research at medical schools, universities, and research institutes. These grants, rigorously evaluated and competitively awarded, are a principal source of research breakthroughs. They are key elements in U.S. leadership in biomedical research. The FASEB Consensus Conference participants recommend that funds be provided in FY 1996 to support 25,725 research project grants, an increase of 9.2% over the 23,370 research project grants scheduled for funding in FY 1995.[8] This will enable NIH to make optimal use of new knowledge from neuroscience, cardiovascular medicine, infectious diseases, and cancer research. The investigator–initiated grants represent the heart of the NIH Extramural program.

> *"The United States has achieved its great success in biomedical research because of the way in which decisions are made about 'what' should be investigated and 'who' should do the investigating. The method has as its soul, the peer review system; and its creative force derives overwhelmingly from an emphasis on investigator–initiated research projects."*
> Alfred G. Gilman, 1994 Nobel Laureate in Physiology or Medicine (November 23, 1994).

Success Rate: In FY 1993, the success rate for all NIH research project grants was 24%. Estimates of success rates for FY 1994 and FY 1995 are 25%. This represents a stabilization of success rates at a level significantly below that of the recent past. These success rates, moreover, include diverse funding mechanisms and combine data on the funding of the crucial investigator–conceived research grants (termed R01 grants by NIH) with those of other programs. It is the innovative projects supported by R01s that contain the seeds of tomorrow's breakthroughs. The success rate for new, unsolicited R01s was only 15% in FY 1993.

Peer Review: FASEB supports the peer–review system because it provides for the best possible scientific work based on merit review. The practice of earmarking funds for specific projects circumvents this process and deprives the public of the assurance that scarce federal funds are going to support the best science.

As part of the National Performance Review, NIH has undertaken a major review of its extramural administrative and program functions, including a reas

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[8] NIH funded 23,603 research grants in FY 1993 and 23,832 research grants in FY 1994 (excluding Small Business Innovation Research and Small Business Technology Transfer Awards).

National
Institutes
of Health

sessment of the peer–review process. The review (often called "reinvention") is designed to improve the effectiveness of the program, removing those elements that are inefficient or inhibit the support of the highest quality research. The Conferees support the innovative approaches to the management of the extramural program, including just–in–time submissions and triage review that have the potential to streamline the review process, thereby reducing its costs to both applicants and government. FASEB commends NIH for embarking on a program of innovation, experimentation, and evaluation.

Targeting: FASEB is concerned about the effects of targeting NIH extramural research through RFAs (Requests for Applications). RFAs account for 3–4% of all extramural grant funds. They often are announced with short–term deadlines and reviewed by special study sections. These policies restrict the applicant pool and increase the administrative costs of review. FASEB is concerned that RFAs provide neither the most effective nor the most efficient mechanism for promoting and supporting new research initiatives in areas of special priority. Areas of special priority should be announced in an open–ended manner as adjustments in the NIH portfolio and reviewed by regular study sections. Progress in areas ripe for increased investment and multicenter research can be handled better by other mechanisms.

> ***"Now everything is targeted, bottom line, how to make a buck . . . They are not as willing to take a chance now on people like me exploring the unknown."***
> Martin Rodbell, 1994 Nobel Laureate in Physiology or Medicine. (October, 1994).

Training

NIH training programs are an investment in human capital for the future of human health. FASEB recommends $417 million dollars for training in FY 1996.

It is crucial that NIH be able to invest in the highest quality individuals from the undergraduate applicant pool to maintain the Nation's competitive advantage, and to ensure that we continue to capitalize on discoveries made in U.S. research laboratories. The average age of research faculty in the Nation's universities, medical schools, and research institutes is increasing. Young investigators must be attracted to replace these faculty members when they retire.

Current stipend levels for NIH trainees and fellows are inadequate. In recent years, the training budget has been insufficient to meet the recommendations of FASEB and the National Research Council (NRC)[9] for "realistic" stipends. The Conferees believe that this is a serious problem, and recommend that additional funding be appropriated in FY 1996 to preserve the quality and effectiveness of

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[9] Federation of American Societies for Experimental Biology. (1993) *Report of the FASEB Consensus Conference on FY 1995 Federal Research Funding in the Biomedical and Related Life Sciences.* Bethesda, MD: FASEB; and National Research Council, Committee on National Needs for Biomedical and Behavioral Research Personnel. (1994) *Meeting the Nation's Needs for Biomedical and Behavioral Scientists.* Washington, DC: National Academy Press.

NIH training programs. FASEB recommends an increase in stipend levels to $12,000 for predoctoral and $25,000 for first–year postdoctoral appointees, with proportional increases in funding in subsequent years of training. An increase of $38 million over the FY 1995 training budget will allow NIH to raise the stipends to the recommended levels.

The continuing low rate of unemployment among doctoral biomedical scientists (1.7% unemployed, 1.6% underemployed, and 92.6% employed in science and engineering occupations),[10] indicates a continuing demand for highly skilled individuals in the biomedical sciences. The Conferees concur with the NRC Committee on Research Personnel, and recommend that the number of basic biomedical sciences predoctoral and postdoctoral training positions remain at current levels.

The Conferees further reaffirm the importance and unique character of the Medical Scientist Training Program (MSTP), and restate the recommendations of both FASEB and the NRC to increase the number of MSTP trainees by 50 for each of the next five years to reach a total of 1,000. This program provides a cadre of MD/PhD physicians–scientists who have the ability to accelerate the practical use of fundamental scientific discoveries.

Other Issues

Shared Instrumentation: FASEB strongly supports the Shared Instrumentation Grants (SIG) Program, a part of the National Center for Research Resources Biomedical Research Support Program (BRSP). Begun in 1982, the SIG Program allows institutions to purchase state–of–the–art research instruments (such as nuclear magnetic resonance spectrometers, mass spectrometers, X–ray diffractometers, and protein and DNA sequencers) for cost–effective sharing by groups of NIH–supported scientists.

Instrumentation is critical for scientific progress. Instrumentation in American laboratories has not kept pace with that in laboratories in competing nations. From FY 1985 through FY 1991, the SIG Program awarded an average of $31.9 million per year. The level of funding has dropped continuously after FY 1991, averaging only $9.0 million per year. Since FY 1992, the success rate for applicants averaged 14.1 percent, and never rose above 16.5 percent. To compensate for the recent period of inadequate funding and adjust for price increases, FASEB recommends that $50 million be included in the NIH budget for competitively awarded, shared instrumentation in FY 1996.

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[10] National Science Board. (1993) *Science and Engineering Indicators — 1993.* Washington, DC: US GPO.

Director's Discretionary Fund: Appropriations provided by Congress to the Director's Fund have enabled Dr. Harold Varmus to identify new opportunities in medicine and fundamental investigation. Not only has innovative research been encouraged, but also promising young investigators, who otherwise might not receive NIH support, have been given funding to test novel, forward-looking ideas. The Shannon Award program, in particular, continues to be successful as a vehicle for funding the most innovative research. FASEB recommends a budget of $10 million for the Director's Fund in FY 1996. This represents a 33% increase in recognition of the particular value of this fund.

Budget Transfer Authority: Occasionally, unexpected issues and opportunities arise in research which can be exploited by a rapid infusion of funds. NIH must be able to respond flexibly to such situations when they present themselves. FASEB commends Congress for giving the Director the ability to transfer up to 1% of the NIH appropriation to activities he may designate.

Intramural Program: Intramural research at NIH is an important component of the agency's mission. FASEB agrees, however, with the recommendation of the External Advisory Committee to the Director's Advisory Committee that the intramural program budget should not exceed 11.3% of the total NIH budget. Monies needed for renovation of NIH's Clinical Center should be derived from a special appropriation. They should not compromise support for NIH's intra–and extramural research programs.

> ***"Medical research is the key to eliminating disease and disability and making a health care system less costly and more effective."***
> Senator Tom Harkin. (December 8, 1993) *Statement to Senate Committee on Labor and Human Resources Hearing Health Care Reform and Medical Research.*

Biomedical Research Trust Fund: FASEB strongly endorses the concept of a biomedical research trust fund to augment NIH funding. Increased support for NIH and biomedical research must have a central place in all future discussions of health care reform.

Budget Recommendations

In FY 1994, the NIH appropriation was $10,937,653,000. The FY 1995 appropriation is $11,326,307,000, an increase of only 3.6%. NIH estimates that the Biomedical Research and Development Price Index (BRDPI) will rise by 4.1% in FY 1995. Thus, the purchasing power of NIH support will have declined by 0.5% by the end of FY 1995. For FY 1996, FASEB recommends an NIH appropriation of $12,458,938,000, an increase of 10% over FY 1995. Included in this recommendation are a 14% increase in funds for research project grants, a substantial increase for shared instrumentation grants and for the Director's Discretionary Fund, and modest increases in MSTP trainees and in stipends for pre–and postdoctoral trainees.

TABLE 2: NATIONAL INSTITUTES OF HEALTH

Appropriations and FASEB Recommendations

Fiscal Years 1994-1996 (Dollars in Millions)

Program	FY 1994	FY 1995	FY 1996	
	Appropriation (Actual)	Appropriation	FASEB Recommendation	% Change from FY 95
Research Grant Funding (number of awards)	$5,869.075 (23,832)	$6,000.650 (23,370)	$6,847.886 (25,725)	14.1%
Training (number of positions)	$373.394 (14,388)	$381.352 (14,392)	$417.000 (14,442)	9.3%
Director's Fund	$0	$7.500	$10.000	33.3%
Instrumentation	$9.000	$9.500	$50.000	426.3%
Other Research	$4,686.184	$4,927.305	$5,134.252	4.2%
Total NIH	$10,937.653	$11,326.307	$12,458.938	10.0%

National Science Foundation

Agency Mission

The mission of the National Science Foundation (NSF) is to promote the progress of science, mathematics, and engineering. It is the only independent Federal agency that focuses on supporting fundamental research, providing support for basic research and educational activities in all fields of the natural and social sciences, mathematics, and engineering. Most of this research is performed at colleges and universities through investigator–initiated, peer–reviewed research grants. There is no intramural research program at NSF. NSF plays an important role in undergraduate education in science and mathematics through programs of model curriculum development, teacher preparation, and informal science education. In addition, the Foundation's educational activities have expanded to include programs that improve K–12 science and math education, increase the participation of women, minorities and other underrepresented groups in science and technology, and measure the performance and outcomes of science and technology in the U. S. and abroad.

FASEB expresses its appreciation of the strong leadership that Dr. Neal Lane has provided the agency. Under his guidance, NSF has continued its vital role as a sponsor and catalyst of fundamental research and education in science, mathematics, and engineering.

"[L]eadership in science has become one of the defining characteristics of great nations."

National Academy of Sciences, Committee on Science, Engineering, and Public Policy. (1993) *Science, Technology, and the Federal Government: National Goals for a New Era.* Washington, DC: National Academy Press.

The Directorate for Biological Sciences (BIO) fosters research that illuminates the underlying principles and mechanisms governing life. Research ranges from the study of the structure and dynamics of large biological molecules, such as proteins and nucleic acids, through cells, organs, and organisms, to studies of populations and ecosystems. It encompasses processes that are internal to the organism as well as those that are external, and includes temporal frameworks ranging from measurements in real time to the full scope of evolutionary time.

A high priority within BIO is to ensure the vitality of the biological sciences in U.S. colleges and universities, especially in those areas where NSF has major responsibility. The Foundation is the Nation's principal supporter of fundamental research in biodiversity, environmental biology, and plant biology, providing over 95%, 75%, and 50%, respectively, of all support for research in these areas. In addition, BIO supports infrastructure and research resource development for the biological sciences such as multi–user instrumentation, living stock centers, systematic collections, and computerized databases.

Recent Accomplishments

The NSF BIO Directorate has supported a substantial portion of the Nation's most significant investigator–initiated, fundamental research in the life sciences.

This type of research continually produces some of the most innovative and imaginative ideas, instrumentation, and methods that often generate wide–ranging, and usually unanticipated, applications to the benefit of the United States and the world.

In the last decade, it has become axiomatic that all organisms are designed on the same genetic and molecular principles. The choice of organism to be studied can therefore be dictated by its suitability to answer a particular fundamental question. The answer, in turn, often provides the intellectual infrastructure for advances in biotechnology, improvements in human health, and a more complete understanding of the impact of biodiversity and comparative physiology on ecology and the environment.

This sequence is illustrated by the following recent advances made by investigators supported by NSF:

- **Identification of genes that regulate insect development** This knowledge could well prove to be important for control of insect pest populations, but who would originally have guessed that the same kinds of genes that control development in insects also control development in the human nervous system? The molecular tools developed in connection with this research are proving useful in elucidating problems associated with human development and neural disorders

- **Computer simulations of 'back door' enzymes** In this research, supercomputers were used to construct a molecular model of acetylcholinesterase, an enzyme of great importance in neuromuscular function in many organisms, including humans. A new passage, a "back door," was detected for the first time. This back–door mechanism might apply very generally to other enzymes, and have major applications for studies of enzyme mechanisms and, therefore, drug development

- **Isolation of a key gene controlling the intake of potassium and of toxic metals in plants** This gene is important in plants, and its identification could lead to increased crop yield. An understanding of its fundamental properties might also lead to genetically engineered plants that could be used to detoxify soil areas or water contaminated with heavy metals

- **Discovery of a new deep–sea bacterium** This unexpected new organism, occurring from 500– 3,000 meters deep, promises to play interesting roles in ocean ecology and biodiversity. It is also the most abundant organism on earth. Studying this bacterial cell may lead to new understanding of population size in the ecosystem

- **Development of new instrumentation** Recent improvements in instruments have widespread significance for dissecting basic cellular and molecu-

"No, a thousand times no; there does not exist a category of science to which one can give the name applied science. There are science and the applications of science, bound together as the fruit to the tree which bears it."
Louis Pasteur. (1891) "Pourquoi la France n'a pas trouvé des hommes supérieurs au moment du péril." *Revue Scientifique.*

lar mechanisms, for advances in medicine and nanotechnology, and for other societal purposes (e.g., criminology). Examples include detection hardware for synchrotron—high–speed x–ray structure determination; atomic force microscopy; new, automated high–speed microsequencers for DNA and protein;, confocal microscopy; NMR for protein structure in solution, and basic algorithms for magnetic resonance imaging

Issues and Developments

Programmatic Structure at the NSF: The primary mission of the NSF is to promote fundamental research in the sciences. The direction for this type of research is best determined by creative investigator–scientists working at the cutting edge of their respective fields. Of concern to FASEB is the trend for the NSF to commit and restrict a growing fraction of its research funds for specific initiatives. Although some of these targeted programs may be laudable efforts in their own right, they threaten funds available for investigator–initiated projects and, in the long run, jeopardize the truly original research that will ultimately lead to breakthroughs and hence practical applications

Peer–review Assistance: The NSF has been asked by Congress to assist both EPA and HUD in the peer review of proposals submitted to those agencies. While FASEB strongly endorses the principle of peer review for all governmental funding, and therefore applauds this directive, FASEB is deeply concerned that funds to support these activities were not provided to the NSF, nor were EPA or HUD directed to cover the costs. It is essential to correct this oversight so that the NSF does not carry additional administrative responsibilities, which without additional funding, will constrain its ability to fund research

NSF Reauthorization: The Conferees carefully considered the Reauthorization bills for the NSF prepared by the Senate and House. For the yet–to–be–drafted consensus bill, FASEB endorses the Senate version's recommendation of substantial increases in NSF appropriations over the next five years. FASEB also endorses the Senate's provision that there be no freezes or caps on overhead

Infrastructure Funding: The Conference applauds the recent appropriation of $250 million for NSF infrastructure programs in FY 1995, an increase of more than 100% from 1994. FASEB further urges the Administration to comply with P.L. 103–327 and request at least $250 million in infrastructure for the FY 1996 NSF budget. It is essential, however, that all these infrastructure monies represent additional appropriations and not be taken from the research grant budget.

Funding Recommendations

The Conferees recommend funding increases both in the size and number of NSF research project grants. As noted by the Commission on the Future of the NSF, the award size of NSF– sponsored projects is frequently too small to carry

> ***"Modern instrumentation makes unprecedented findings possible and accelerates the pace at which these discoveries are made . . . Through the use of instrument–intensive techniques researchers are deeply entrenched in investigations that not only strive to unmask the underlying processes of life and disease, but also to develop instrumentation used to investigate and to treat disease."***
> National Center for Research Resources. (1994) *NCRR: A Catalyst for Discovery*, Bethesda, MD: NCRR, National Institutes of Health.

National
Science
Foundation

"It is urged that the size of NSF grants be examined. Many believe that, on average, NSF individual research grants are too small. Examination of separate fields and wide consultation within the community would help in understanding the issues. We favor research grants sufficient to do the work for which the grant is awarded."
National Science Board. (1992) *A Foundation for the 21st Century: Report of the National Science Board Commission on the Future of the National Science Foundation.* Washington, DC: National Science Foundation.

out the project effectively. BIO research grants, in particular, are very small in relation to the cost of fundamental research in modern biology. The typical award of about $80,000 per year includes only some $50,000 for costs of experimentation and analysis, barely enough to cover a small portion of salaries and some modest equipment and supplies. Limited funds constrain NSF program officers to reduce award levels well below the amount requested, forcing many investigators to constrict their scientific goals and slow their progress toward these goals.

FASEB therefore recommends that the average BIO grant award be increased substantially over the next five years, with a major increase occurring in FY 1996. By the year 2000, the average BIO grant should be approximately $150,000. This assumes an inflation rate of 3% (see Table 3).

TABLE 3: FASEB RECOMMENDED SCHEDULE FOR FUNDING

Biological Sciences at the National Science Foundation, FY 1996 - 2000
(Dollars in Millions)

	FY 1995[1]	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Research Project Grants (Number)[2]	$252.000 (2,900)	$325.000 (2,950)	$360.000 (3,000)	$403.000 (3,100)	$448.000 (3,200)	$495.000 (3,300)
Centers	$28.980	$30.000	$31.000	$32.000	$33.000	$34.000
Education & Training	$33.610	$34.000	$35.000	$36.000	$37.000	$38.000
Facilities	$.100	$.110	$.110	$.120	$.120	$.120
Total BIO	$314.690	$389.110	$426.110	$471.120	$518.120	$567.120

Notes:

1. **FY 1995 figures as reported by NSF's *Justification of Appropriations for FY 1995.* Final figures are subject to adjustment at a later date.**
2. **The proposed number of awards is intended to raise the success rate for RPGs from approximately 22% to 25% over five years. The recommended budget for RPGs is based on the following schedule of average award rates:**

FY 1996	**$110,000**
FY 1997	**$120,000**
FY 1998	**$130,000**
FY 1999	**$140,000**
FY 2000	**$150,000**

NSF estimates the average annualized RPG award size to be $80,000 in FY 1995. Assuming a 3% inflation rate, the proposed average grant sizes will yield a real increase in average grant size of 62% in five years.

In its Justification of Appropriations for FY 1995 released last spring, NSF indicated that BIO would support 2,900 research projects in FY 1995. Although the document states that BIO enjoys a 27% funding rate, this is an aggregate number that reflects the success rate for ***all*** BIO-supported grants, not just the research project grants. The actual success rate for research project grants is no more than 22%.

At a time when the life sciences are poised for explosive growth, and when new concepts and technologies are needed to address world ecological problems, it seems inconceivable that the richest and most technologically advanced nation on earth can support only 2,900 relatively small projects per year in fundamental biological research. The Conferees therefore recommend that BIO initiate a five-year plan to increase the number of grants funded each year from 2,900 to 3,300.

The Conferees feel that funding for centers, education and training, and facilities are currently at appropriate levels, and recommend that these programs increase by the rate of inflation. This recommendation is made assuming that the $250 million appropriation for facilities provided by Congress in 1995 will be maintained in subsequent years and that the generous appropriations for NSF Centers and Education programs in recent years will continue. FASEB feels that the growth in number and size of BIO awards is vital for the continued success of our biological sciences research. As part of a long–range, sustained effort to reach these goals, FASEB Conferees recommend a $389.1 million budget for BIO in FY 1996, an increase of 23.6%.

TABLE 4: NATIONAL SCIENCE FOUNDATION
Life Sciences Funding and FASEB Recommendations
Fiscal Years 1994-1996 (Dollars in Millions)

Program	FY 1994	FY 1995	FY 1996	
	Appropriation	Appropriation	FASEB Recommendation	% Change from FY 95
Biological Sciences Directorate, Research Project Grants (number of awards)	$231.190 (2,899)	$252.000 (2,900)	$325.000 (2,950)	29.0%
Centers	$23.980	$28.980	$30.000	3.5%
Education & Training	$33.810	$33.610	$34.000	1.2%
Facilities	$0	$.100	$.110	10.0%
Total NSF BIO	$288.780	$314.690	$389.110	23.8%

Department of Energy

Agency Mission and Life Science Programs

The U.S. Department of Energy (DOE) fills a special role in biological research by its multidisciplinary approach and support of specialized facilities used by scientists nationwide. Shifting its emphasis away from national defense, DOE is directing more of its research toward alternative energy sources, global change, economic competitiveness, technology transfer, and life sciences research. The new missions in the life sciences include research on the health effects of environmental agents, renewable fuels and chemical production, and large–scale, technologically based endeavors such as mapping and sequencing the human genome. This shift in focus should be seen in an increased priority for biological research within the DOE budget and at the National Laboratories.

> ***"[O]ur results provide convincing evidence that, particularly in industries like drugs, instruments, and information processing, the contribution of academic research to industrial innovation has been considerable."***
> Edwin Mansfield. (1991) "Academic research and industrial innovation." *Research Policy 20: 1-- 12.*

DOE life science research is conducted primarily through two offices: the Office of Health and Environmental Research (OHER) and the Office of Basic Energy Sciences (BES). The activities of OHER are subdivided into three divisions that have a mission–oriented perspective: (1) Health Effects and Life Sciences Research, (2) Environmental Sciences, and (3) Medical Applications and Biophysical Research. OHER sponsors the majority of its life sciences research through the Health Effects and Life Science Research Division. Approximately 65% of OHER's budget funds research at the National Laboratories and about 35% supports extramural research.

Approximately 380 life sciences research projects were funded by the OHER in FY 1994. Of these, approximately 60 were new or competing. The number of funded research projects in FY 1995 is projected to be about the same as in FY 1994. Approximately 20 percent of the life sciences research applications reviewed by OHER receive funding.

FASEB commends DOE for using peer review for its research applications. The National Laboratories provide a unique setting for multidisciplinary team approaches, specialized facilities and new applications for fundamental biological research. It should be noted that the user facilities at the National Laboratories are available to the scientific community at large and thus are important national resources. For example, 112 scientists at 73 institutions will use the Argonne synchrotron in 1995. To improve the efficiency of research at the National Laboratories, there should be a decrease in the regulations surrounding their use. Some current regulations are not appropriate for most biological research laboratories. These unnecessary regulations negatively affect the amount of science that can be performed at these facilities.

Within BES, the Energy Biosciences Division (EBD) budget supports fundamental research in molecular biology and microbiology. The majority of the

Department of Energy

Energy Biosciences Division budget, 85%, funds extramural research. However, in FY 1993, the division funded only 12 of the 246 new proposals submitted for peer review (5%). In FY 1994, the division funded 15% of the 139 new proposals submitted.[11]

Some of the life sciences programs at DOE collaborate with those of other federal agencies, and there appears to be very good interagency coordination on these joint efforts.

Recent Accomplishments

Significant advances are being made in the four programs of the Health Division of OHER: Health Effects Research, Structural Biology, Molecular and Cell Biology, and the Human Genome. Examples of these accomplishments are listed below.

Health Effects Research: The world's first Microbeam Irradiator for irradiating cells with discrete low doses (a single alpha particle) has been developed at the Pacific Northwest Laboratory. By targeting the nucleus or cytoplasm of an individual cell with the lowest possible dose, scientists expect to learn considerably more about mechanisms and effects of low dose radiation.

Oak Ridge National Laboratory is a world center for mouse genetics and application of molecular techniques to generate mouse models for human diseases. Using insertional mutagenesis, for example, scientists at Oak Ridge have located a gene in mice that may lead to treatment of fatal polycystic kidney disease in humans. Lawrence Livermore Laboratory has just developed mouse chromosome painting probes, which will allow study of the induction of chromosome alterations following exposure to chemicals or radiation.

> ***[W]e continue to lag behind some other industrialized nations in the percentage of the gross domestic product devoted to nondefense R&D."***
> National Science Board. (February, 1994) *Toward the Next Century: The State of U.S. Science and Engineering.* Washington, DC: National Science Foundation.

These resources are available to scientists throughout the United States by contacting DOE and the principal investigators for these projects.

Structural Biology: Structural biology facilities are under construction at the new synchrotrons at the Lawrence Berkeley Laboratory and the Argonne National Laboratory. In addition, new structural biology beamlines have been constructed at the National Synchrotron Light Source at the Brookhaven National Laboratory and at the Stanford Synchrotron Research Laboratory. These new facilities represent a significant addition to our national capacity to solve macromolecule crystal structures, a growing component of academic and commercially oriented biological research. Recently, crystallography has provided insights about P450 (a group of oxygen–utilizing enzymes that are important in bioremediation and detoxification of wastes). Optimum use of these facilities will require more staff and computational resources.

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[11] BES uses a system of "preproposals" to screen prospective projects prior to formal application and peer review. Fluctuations in the rate of funded proposals may reflect variations in the screening of proposals.

Molecular and Cell Biology: DOE's new microbial genome initiative was recognized for its potential basic research opportunities and commercial applications in environmental cleanup, pollution prevention, and energy production. Enzymes from bacteria that live in extreme conditions have great potential for various industrial purposes.

Human Genome Program: The National Laboratory Gene Library Project is a joint endeavor of the Los Alamos and Livermore National Laboratories to prepare chromosome–specific DNA libraries for all human chromosomes and to make these available to the scientific community. Previously both laboratories had prepared phage insert libraries for all human chromosomes; the libraries are available through the American Type Culture Collection in Rockville, Maryland. The two laboratories have now completed cosmid libraries for all chromosomes and will soon announce arrangements for their distribution. These libraries have found use in genome mapping projects around the world.

The key objective of BES is to discover basic information about plants and microorganisms relating to energy. In a parallel activity, photosynthesis research in the Chemical Sciences Division focuses on understanding the physico–chemical mechanism of photosynthesis, with one goal being renewable resource production of fuels and chemicals. Understanding how microorganisms convert sulfur in petroleum, which allows purification prior to combustion, is one on many advances BES grantees have made that has led to industrial applications.

> *"We are obliged, like it or not, to rely on science for any hope of solving such biological puzzles as Alzheimer's disease, schizophrenia, cancer, coronary thrombosis, stroke, multiple sclerosis, diabetes, rheumatoid arthritis, cirrhosis, chronic nephritis, and now, topping the list, AIDS. When we have gained a clear comprehension, in detail, of what has gone wrong in each of these, medicine will be earning its keep, in spades."*
> Lewis Thomas. (1992) *The Fragile Species*. New York: Macmillan.

Recommendations

The total budget for the Health Effects and Life Sciences Research Division of OHER was $142.7 million in FY 1995, an increase of only $1.4 million (1%) over the FY 1994 budget of $141.3 million. Two of the four divisions (Health Effects Research and Molecular and Cell Biology) actually lost funding over this period. The Conferees recommend $157.0 million (a 10% increase) for the budget of the Health Effects and Life Sciences Division in FY 1996. Almost half of this increase is necessary to keep up with inflation over the last two years. The balance of the increase is needed to fund new initiatives and expand promising activities, such as a computational center, operating costs for expanded facilities, and the new microbial genome initiative.

The budget for the Energy Biosciences Division of BES was $25 million for FY 1994 and $26 million for FY 1995. While the Energy Biosciences Division budget is small relative to that of Health Effects and Life Sciences Research Division, it is notable that about 18% of extramural basic plant biology research in our nation is funded by Energy Biosciences Division (a significant contribution

Department
of Energy

to biological science is also made by the Division of Chemical Sciences). The Conferees recommend $28.6 million (a 10% increase) for the Energy Biosciences Division budget in FY 1996, with the expectation that these additional monies will allow the funding of more new grants.

TABLE 5: DEPARTMENT OF ENERGY
Life Sciences Funding and FASEB Recommendations
Fiscal Years 1994-1996 [Dollars in Millions]

Program	FY 1994	FY 1995	FY 1996	
	Appropriation (Actual)	Appropriation	FASEB Recommendation	% Change from FY 95
Health Effects & Life Sciences Research Division[1]	**$141.300**	**$142.700**	**$156.970**	**10.0%**
Health Effects Research	**$37.800**	**$36.400**		
Structural Biology	**$17.000**	**$18.600**		
Molecular & Cell Biology	**$21.500**	**$20.300**		
Human Genome	**$65.000**	**$67.400**		
Energy Biosciences Division Sciences[2]	**$25.000**	**$26.000**	**$28.600**	**10.0%**
Total Selected Life Sciences,[3] DOE	**$166.300**	**$168.700**	**$185.570**	**10.0%**

Notes:

1. **The Health Effects and Life Science Research Division is within the Office of Health and Environmental Research.**
2. **The Energy Biosciences Division is within the Office of Basic Energy Sciences.**
3. **Funding levels are based on program operating budgets, and do not include capital equipment or construction budgets for these program areas.**

Department of Veterans Affairs

Agency Mission

Providing the highest quality health care to U.S. Veterans remains a national obligation that continues to be met by the Veterans Health Administration of the Department of Veterans Affairs (VA). The mission of the VA research and development program is to conduct a broad spectrum of research to enhance the quality of health care for U.S. veterans. The research program is designed to integrate clinical needs with more fundamental research opportunities, and assures the rapid transfer of new knowledge from the laboratory to the bedside. As a result, veterans benefit from advances in diagnosis and treatment as well as from the talents of the cadre of highly trained physicians who are attracted to the VA system for its research opportunities.

Three features contribute to the success of VA research: a strong emphasis on clinical research that takes advantage of a large patient population and coordinated study programs; the highest percentage of physician–researchers in any Federal research agency; and an impressive commitment to high quality research through peer–reviewed investigator–initiated proposals. The strengths of VA research in areas like diabetes, hypertension, and aging will enhance the VA's move toward primary care activities. Therefore, research will continue to play an important role in the future, supporting the evolving clinical mission of the VA.

> ***"The VA health care system owes much of its success to the medical school affiliation program that General Omar Bradley conceived and implemented following World War II. Cooperative relationships with academic medical centers and consistent investment in quality research should continue as prerequisites in tomorrow's VA."***
>
> Paralyzed Veterans of America. (1994) *Strategy 2000 Phase II: Meeting the Health Care Needs of Veterans.* Washington, DC: PVA.

Recent Accomplishments

Among the many achievements of the VA research program are:

- Identification of a bacterial agent that causes stomach (peptic) ulcers. Treatment with antibiotics is greatly reducing this medical disorder and will provide substantial savings over currently prescribed anti–ulcer drugs
- Highly successful Cooperative Studies that have defined the proper treatment of hypertension as a function of age and race; protective effects of aspirin against heart attacks; effective non– surgical treatment of cancer of larynx; and surgical correction of deafness
- Studies of factors responsible for, and treatment of, Persian Gulf War Syndrome
- Identification of genetic markers for alcoholism and of plant extracts that protect against liver cirrhosis.

Department of Veterans Affairs

Notable recent initiatives by the VA medical research program include: study of the medical consequences of exposure to environmental and toxic hazards; improvement of ties with Black Colleges and Universities and Hispanic-Serving Institutions to recruit underrepresented minority groups into VA research careers; and creative programs aimed at increasing the number of women investigators in the VA's research program.

Budget Recommendations

The current VA research budget is approximately $272 million, which includes a $20 million transfer of undesignated funds from the Department of Defense. During the preceding decade, the budget for VA research failed to keep pace with inflation, resulting in missed opportunities to address research issues related to veterans' health, a deterioration of the VA research infrastructure, and a growing inability to provide sufficient opportunities for research career development. To reverse this alarming trend and to provide vitally needed resources for the VA research program, the Conferees urge that a minimum of $296 million be appropriated for the VA Medical and Prosthetic Research Program in FY 1996 as part of the HUD-VA-Independent Agencies Appropriations bill. This budget recommendation does not include much needed support for upgrading the VA's deteriorating research infrastructure and enhancing programs for research career development.

TABLE 6: DEPARTMENT OF VETERANS AFFAIRS
Biomedical Appropriations and FASEB Recommendations
Fiscal Years 1994-1996 [Dollars in Millions]

Program	FY 1994	FY 1995	FY 1996	
	Appropriation (Actual)	Appropriation	FASEB Recommendation	% Change from FY 95
Medical and Prosthetic Research Program	$252.000	$252.000		
DOD Transfer		$20.000		
Medical Research Funding, Total	$252.000	$272.000*	$296.000	8.8%

Note:

*Includes $252 million Congressional appropriation for the VA Medical and Prosthetic Research Program and $20 million transfer of undesignated funds from the Department of Defense.

Department of Agriculture

Agency Mission

Research at the Department of Agriculture (USDA) is designed to generate new knowledge that will further the USDA mission; to ensure an affordable, abundant, safe and wholesome supply of food and fiber; and to promote the competitive position of U.S. agriculture in a global economy. Because of the explosive growth of the new biology in the present decade, the USDA must exploit to the fullest extent the many breakthroughs that are now occurring. The competitive peer–review program of the National Research Initiative (NRI) is designed to tap the tremendous scientific resources in America and thereby make possible the transfer of new knowledge from the laboratory to the real world of modern agriculture.

Recent Accomplishments

World food needs will triple over the next 50 years. Global environmental quality must be preserved while meeting the food demands of the world population. The challenges require a greatly expanded agricultural research effort. Since its initiation in 1978, the USDA competitive grants program has:

- Funded over 6,000 agricultural research grants at land grant universities, private universities, governmental agencies or public and private institutes

- Supported a large number of graduate students and postdoctoral fellows who were thereby exposed to agricultural problems and their solutions, and have now become junior and senior members of academic faculties

- Succeeded in selecting by the peer–review system the best proposals for funding. For example, within the last year alone genes for disease resistance have been identified in several groups of plants. Such breakthroughs will immediately affect efforts to reduce the use of chemicals without compromising efficiency of production. The implications of such fundamental research can be compared to the discovery of the genetic basis of human disease

- Funded new investigators who are initiating their independent research careers, scientists from the Experimental Program to Stimulate Competitive Research (EPSCoR) states, and seed grants for small academic institutions and equipment grants for strengthening US agricultural research infrastructure at a level of approximately $17 million.

> ***"The decision to provide federal support for a strong U.S. agricultural system was made by the Congress 127 years ago through the Morrill Act of 1862. Now is the time to make a renewed investment in U.S. agriculture, one that will ensure its worldwide leadership role in the coming decades."***
>
> National Research Council, Board on Agriculture (1989). *Investing in Research.* Washington, DC: National Academy Press.

The NRI program has produced numerous research accomplishments. Among recent examples are:

- The discovery that salicylic acid, a naturally occurring chemical similar to aspirin, binds to and inactivates a protein that inhibits accumulation of hydrogen peroxide in plants. In certain plants, an increase in hydrogen peroxide is necessary for the expression of a succession of defense– related genes. This discovery has great implications in developing disease–resistant crop varieties that are environmentally safe

- The first direct proof linking genes of the "s locus" to the natural mechanism defending some plants against self–fertilization and inbreeding. Knowledge of the genetic control of self–fertilization will help design strategies for interbreeding agronomically important genes from wild species into crop species

- Cloning a gene that defends its plant against a particular virus, and which is similar to genes found in two other plant species that defend against fungus and bacteria. This discovery of a single family of genes in three different plant species that confers resistance against three very different pathogens indicates that these or related genes could also defend other plant species from their pathogens. This discovery opens the way to develop more highly disease–resistant plants important to agriculture

- Determination of optimal conditions for extracting naturally occurring enzymes in bacteria that oxidize or breakdown some types of hydrocarbon pollutants occurring in ground water. The enzyme is similar to a family of chemicals that perform similar functions in animals and plants. Understanding mechanisms of enzyme activation and function is key to the further development of remediation technologies for contaminated ground waters

- Investigation of enzymatic and genetic adaptations that allow growth of microorganisms in cold storage. Pathogenic microorganisms that grow at refrigeration temperatures can potentially cause outbreaks of food–borne disease. Preliminary indications are that the regulation of carbohydrate metabolism is the key step to account for how these pathogenic microorganisms adapt to and then grow in refrigerated food. Information on just one of the many critical steps leading to this type of food poisoning can show the way toward eliminating this hazard to our health.

Issues

A 1989 report issued by the National Research Council (NRC) Board of Agriculture[12] recommended that Congress authorize a $500 million appropriation on a yearly basis, with a starting allocation of $100 million to be increased within

"Currently, some 25 percent of U.S. prescriptions are filled with drugs whose active ingredients are extracted or derived from plants. Sales of these plant–based drugs amounted to $4.5 billion in 1980 and are an estimated $15.5 billion in 1990 . . ."

Walter V. Reid (1993). "Economic Realities of Biodiversity." *Issues in Science and Technology.* Washington, DC: National Academy Press.

five years to the $500 million level. In response, Congress established the National Research Initiative (NRI) Competitive Grants Program in its 1990 Farm Bill.

Funds for the NRI never reached the level recommended by the NRC. In FY 1995, the appropriation was $103.1 million, which is expected to fund 850 grants for an average duration of two years each. The FY 1995 appropriation is $2.3 million less than in FY 1994. Moreover, three new programs will be added: Biological Control Research, Water Resources, and Agricultural Systems. This dilution of NRI funding will compromise the ability of scientists to make significant progress in providing the required research in food safety, health promotion and improved environmental quality associated with food and fiber production.

The original NRI legislation called for funding up to 80% fundamental research and for at least 20% mission–linked research. Such an investment is essential in order to develop the scientific knowledge that underlies sustainable agriculture systems, improves environmental quality, and ensures the safety and adequacy of the food supply. Such an investment, however, has been limited by insufficient funding of research.

"Basic research has practical benefits."
William Danforth (1994). Chancellor, Washington University.

Policy Recommendations

Based on the review of the USDA research programs, the Conferees make the following policy recommendations for FY 1996:

- All USDA–funded research, intramural and extramural, should be competitively reviewed by a process similar to that used for the NRI
- There should be a review of the scope of the existing NRI programs to determine if there is consistency between mission and funding level
- There should be a moratorium on new programs until the NRI achieves its full funding level of $500 million, at which time a review of the research programs should be made to delete or modify old programs and to add new programs justified by the new research needs of the agricultural science community
- A semiannual submission of proposals should be instituted to improve the quality of the review process as well as to increase the opportunity of investigators to submit proposals more than once a year

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[12] National Research Council, Board on Agriculture. (1989) *Investing in Research, a Proposal to Strengthen the Agricultural, Food, and Environmental System*, Washington, DC: National Academy Press.

- An undersecretary of Science and Education for USDA, essential to the maintenance of coherence in the NRI, should be appointed

- The NRI should continue its policy of identifying its accomplishments on a regular basis. Its publications are effective ways of providing policymakers with program information in layman's terms

- Continue the Small Business Innovative Research (SBIR) program, which is an effective mechanism to transfer agricultural research information into commercial applications.

Budget Recommendations

For FY 1996, FASEB recommends an appropriation of $182 million for the NRI, the same amount recommended in the Report of the FASEB Consensus Conference for FY 1995. In addition, the Conferees recommend a five-year plan that will logically and incrementally raise the funding of the NRI to $500 million by 1999, the level initially authorized by Congress in the 1990 Farm Bill to be achieved by 1996. This plan will increase (1) the level of funding for individual grants, which do not now realistically meet the demands of modern research, (2) the duration of an average grant from 2.1 years to 4 in order to allow a stable period of investigation, and (3) the success rate, which now averages 20 to 23%. NRI, a small fraction of the USDA budget, is the only competitively awarded, peer-reviewed research program in the agency. As a research program, it provides a key to our continued international competitiveness in agriculture. The NRI program needs to achieve a critical mass in order to elicit, develop, and sustain the type of research initiative for which it was established.

To provide adequate funding for the five-year plan, we recommend both new allocations of funds as well as a transfer of Commodity Support funds by USDA or Congressional action. As Congress reduces the Commodity Support funds, it is not only reasonable but also critical that science-based options be provided for the American farmers in order for them to compete in the world market; therefore, a small part of the Commodity Support funds should be assigned to the NRI.

> ***"As a leader, the United States calls upon its agricultural and food system to compete in a free-market world...The single resource that U.S. farmers can draw upon to capture the leading edge is science and technology. The U.S. government must help to provide an environment where U.S. producers and processors can compete."***
>
> National Research Council, Board on Agriculture (1989). *Investing in Research.* Washington, DC: National Academy Press.

Department of Agriculture

TABLE 7: FASEB RECOMMENDED SCHEDULE
for Funding USDA National Research Initiative, FY 1996-1999
(Dollars in Millions)

	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
Number of Grants	829	850	900	1,000	1,050	1,100
Total Appropriation[1]	$105.400	$103.100	$182.000	$300.000	$400.000	$500.000

Note:

This total equals the number of grants multiplied by the average award size and by the average duration of award. For purposes of estimation, the following numbers of grants and average award sizes were used:

Fiscal Year	Number of Grants	Average Award Size	Average Duration
FY 1994	829	$59,000	2.1
FY 1995	850	$61,000	2.0
FY 1996	900	$81,000	2.5
FY 1997	1,000	$100,000	3.0
FY 1998	1,050	$109,000	3.5
Fy 1999	1,100	$114,000	4.0

In FY 1994 and FY 1995, a line item to the NRI budget transferred $2.5 million from NRI to the Israel Binational Agricultural Research and Development Program (BARD), a cooperative agreement whereby US and Israeli scientists jointly conduct research projects of interest to both nations. This line item decreases funds available to NRI to carry out its Congressional mandate. We recommend alternative funding for BARD, either under a line item in the Agriculture Research Service (ARS) budget or under a line item in the appropriation for the USDA/Cooperative State Research, Education, and Extension Service (CSREES).

TABLE 8: DEPARTMENT OF AGRICULTURE
Life Science Funding and FASEB Recommendation
Fiscal Years 1994-1996 (Dollars in Millions)

Program	FY 1994	FY 1995	FY 1996	
	Appropriation (Actual)	Appropriation	FASEB Recommendation	% Change from FY 95
National Research Initiative	$105.400	$103.100	$182.000	76.5%

National Aeronautics and Space Administration

Agency Mission and Life Sciences Programs

The National Aeronautics and Space Administration (NASA) Life Sciences program is unique — it is the only federal program that conducts medical research in space. Microgravity in space allows exploration of fundamental biological questions that are impossible to study on Earth, including how living organisms sense and respond to gravity, the role of gravity in growth and development, and the influence of gravitational changes on biologic processes. The scope of this research is broad: studies are conducted at molecular, genetic, cellular, and organ levels, in plants, animals, and humans. The distinctive characteristics of space offer opportunities to advance understanding of a myriad of biological processes, and to apply the new knowledge gained to improve the quality of life on Earth.

Access to space enables NASA Life Sciences to approach medical and scientific issues and problems from an unusual perspective. With its space and related ground–based research programs, NASA is providing new insights into important areas of medicine, including cardiorespiratory, immune, body fluid, and endocrine regulatory mechanisms, and such medical problems as bone demineralization, fractures, wound healing, muscle atrophy, and disorders of balance.

Recent Accomplishments

Examples of recent NASA accomplishments in life sciences research include:

- NASA life scientists and NIH epidemiologists examining the use of remote sensing maps to identify areas of the globe where conditions favor growth of mosquitoes and malarial parasites

- NASA and National Cancer Institute scientists applying NASA's expertise in digital imaging to interpretation of mammograms

- Experimental data obtained during Space Shuttle missions refuting predictions based on ground– based bedrest research, that weightlessness increases pressures in the great veins of the chest. Actual measurements obtained from astronauts launched with catheters connected to pressure gauges indicate that pressure in central veins is lower in space than on Earth, not higher

- Also against expectations, actual measurements from space indicating that the imbalance present on Earth between blood flow to the highest and lowest lung segments persists in space.

National Aeronautics and Space Administration

The Conferees were impressed by the great strides NASA Life Sciences has made in improving its peer review of research. As of this year, all research proposals submitted to NASA, from intramural as well as extramural scientists, undergo the same process of competitive peer review. Preliminary analyses of these sweeping changes indicate that NASA has expanded its research opportunities to a much larger and more diverse segment of the scientific community than before. We expect that these changes will have significant and positive effects on the quality of NASA's Life Sciences research efforts.

The Conferees are enthusiastic about the collaboration between NASA and NIH. NASA and NIH have made great progress in preparation for their jointly sponsored Neurolab Spacelab Space Shuttle Mission, scheduled to occur during the Decade of the Brain. Since the last FASEB Consensus Conference Report, special NIH peer–review panels constituted for the Neurolab Mission have selected proposals submitted by a highly respected group of neuroscientists.

The Conferees believe that all of NASA's mission programs should be accessible, as appropriate, to Life Sciences research. For example, NASA should fully use research opportunities afforded by the series of Mir Space Station–American Space Shuttle docking missions, scheduled for the last half of this decade. The Conferees share the concern of the National Research Council (NRC) Space Studies Board that (excepting the Neurolab Mission) NASA is abandoning its Space Shuttle Spacelab Life Sciences research program, which has proved its value, in favor of the uncertain promise of future research on the Russian–American Space Station.

"FASEB opposes using biological research as a major justification for the space station. If Congress or the Administration feels that a space station is important for a national prestige, then physiological research sponsored by NASA to maintain the well–being of astronauts is warranted."
FASEB Public Affairs Executive Committee. (April, 1994).

Policy Recommendations

In view of the improvements made in the Life Sciences program, NASA should transfer all its Life Sciences research activities and their budgets to the Life and Biomedical Sciences and Applications Division. This includes transfering research involving life in extreme environments, currently in the exobiology program, and the Aerospace Medicine program.

Budget Recommendations

To enable NASA to maximize the benefits of its greatly strengthened peer review and its collaboration with other federal agencies, we recommend that the Life Sciences budget be restored to the FY 1994 level, $53.8 million. Further, the Conferees recommend that the level of FY 1996 funding for NASA–NIH collaboration be increased from $15 to $20 million, and that at least $10 million of this be allocated for the Life and Biomedical Sciences and Applications Division.

TABLE 9: NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Life Science Funding and FASEB Recommendation

Fiscal Years 1994-1996 (Dollars in Millions)

Program	FY 1994	FY 1995	FY 1996	
	Appropriation (Actual)	Appropriation	FASEB Recommendation	% Change from FY 95
Life Sciences and Biomedical Applications Division, Research & Analysis	$53.800	$50.700	$53.800	6.0%

Environmental Protection Agency

Agency Mission and Life Science Programs

The mission of the Environmental Protection Agency (EPA) is to protect the environment and human health and to safeguard natural resources. Although the agency is central to Federal programs for environmental research and development, EPA is primarily a regulatory agency. Consequently, most of EPA's research is directed toward enforcing or developing regulatory statutes. The Office of Research and Development (ORD) gathers and analyzes data necessary to evaluate environmental risks and to propose technological solutions. ORD oversees EPA's laboratories, which support extramural programs funded through cooperative agreements. The Health Effects Research Laboratory (HERL) is the principal EPA lab conducting biomedical–related research.

ORD also manages a small research grants program operated through the Office of Exploratory Research (OER). All of the research supported by OER is extramural, and all of its life sciences programs are funded through grants. The budget for OER, however, is only 15% of the budget for ORD. OER's budget has been dedicated entirely to investigator–initiated research until this year, when it included support for two health-related research centers mandated by Congress. One of these centers, at the University of Arkansas, will study the effects of exposure to pesticides in children and adults. The other one, a consortium headed by the Louisiana State University Medical Center, will attempt to correlate high cancer incidence in the Lower Mississippi River Valley with the prevalence of the petrochemical industry. OER's research grants staff reviewed 686 applications in FY 1993. Of this total, 219 (31.9%) were approved by technical review groups for funding and 61 (8.9%) were awarded grants.

Issues

In 1992, OER eliminated its human health research grants program and elected not to support competitive research centers that focus on human health issues. This decision resulted from budgetary constraints and the opinion that other agencies, such as NIEHS, have considerably more money available to support environmental health research.

The remaining biomedical–related research sponsored by OER is directed by the Environmental Biology section of the Research Grants Staff. OER's small investigator-initiated grants program accepts applications relating to any of the following environmentally related areas: biology, engineering, air chemistry and physics, water and soil chemistry and physics, and socioecomomics.

Because EPA's chief priorities are risk assessment and risk management, and because risk is quantified on the basis of scientific information, long–term re-

> ***"Our ability to respond to the environmental and economic challenges of today and tomorrow is strongly dependent on the quality of information produced by a well–organized and productive Federal research and development system."***
> Carnegie Commission on Science and Technology. (1992) *Environmental Research and Development: Strengthening the Federal Infrastructure.* New York: Carnegie Commission.

search is critical to EPA's ability to develop and enforce regulations that will withstand scrutiny and legal testing over time. Thus, EPA must strive further to strengthen its base in fundamental science in order to strengthen its regulatory decisions, thereby enhancing the public's acceptance of them. In addition, the agency must have the capacity to generate necessary data when such information is unavailable in the scientific literature. This requires a pool of high quality investigators experienced in addressing EPA's issues.

The EPA must also develop the capability to anticipate its scientific needs for the 21st Century. To do this, the Agency must be able to keep abreast of scientific advances in various relevant fields if it is to provide leadership in regulating environmental issues and proposing strategies for dealing with complex inter–disciplinary questions. Those relevant fields include molecular genetics, developmental and reproductive genetics, immunological mechanisms and role in disease susceptibility, bioanalytical instrumentation, computer–based imaging technology, surrogate markers of exposure to pollutants, and epidemiological studies on human populations using surrogate markers of exposure.

All of these fields portend enormous opportunities for developing inter–disciplinary approaches for environmental studies. Last year FASEB had recommended doubling the budget of OER, and the Conferees are gratified that this has occurred.

"The Committee of conference is in agreement that credible science is an essential cornerstone to the mission at EPA."
U.S. House of Representatives. (1994) *Report of the Committee of Conference Accompanying H.R. 46–24* (Fiscal Year 1995 VA–HUD–Independent Agencies Appropriations Bill), page 32. Washington, DC: GPO.

The Conferees concur with the conclusions of several committees and organizations that have recently examined the EPA research enterprise, and have recommended increased commitments to and sustained funding of peer–reviewed research. These include an internal EPA committee, the National Academy of Public Administration, EPA's Science Advisory Board, and the Carnegie Commission.[13]

Guided by the recommendations of these internal and external studies, the EPA has made some important strides toward developing and implementing policies that will strengthen its science base and thereby enhance the rigor of regulatory decisions. The Conferees applaud the strong position taken by the EPA administrator to strengthen the research funded by EPA, both in EPA laboratories and at extramural sites supported by EPA. The Conferees point out, however, that much remains to be done to implement these recommendations.

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[13] Agency–Wide Steering Committee. (1994) ***Research, Development, and Technical Services at EPA: A New Beginning, Report to the Administrator.*** Washington, DC: U.S. EPA; and Carnegie Commission on Science and Technology. (1992) ***Environmental Research and Development: Strengthening the Federal Infrastructure.*** New York: Carnegie Commission.

Recommendations

The funding of health research grants should be restored, now that the OER budget has been increased. The Conferees believe that health research on environmental pollutants is not sufficiently supported by EPA or other Federal agencies, such as National Institute of Environmental Health Sciences. Human and animal health is a major issue of concern relating to environmental pollution. The EPA can and should support highly focused investigator–designed research that can serve to strengthen the regulatory decisions that EPA is required to make. It is the opinion of the Conferees that the research supported by other Federal agencies is not driven by this urgent demand and is not a substitute for EPA–sponsored research.

To preserve innovation in EPA–supported research, it is essential that a balance be maintained between investigator–initiated research and directed, goal–oriented research performed extramurally. The Conferees recommend that at least 75% of the extramural budget go toward the support of investigator–initiated and externally peer–reviewed research. EPA still funds most extramural research through cooperative agreements, where research performed by extramural scientists is directed by intramural investigators. While cooperative agreements may be an effective method to conduct research that amplifies the projects of intramural scientists, this funding method does not allow the extramural scientists to determine the direction of the research and it does not make use of peer review. The Conferees are concerned that the lack of peer review and the lack of investigator initiative may thwart innovation.

"Given time, political will, and the intelligent use of science and technology, human ingenuity can find substitutes for wasteful practices and improve the human condition,"
Bruce Alberts (1994) *New "Global Commons" Initiative Will Focus on Sustainable Development, Environment.* Washington, DC: National Research Council.

The Conferees therefore recommend that EPA continue to expand the number and range of research projects it supports. Conferees recommend that the budget of OER be doubled in FY 1996, and that this increase be coupled with the funding of research projects related to the effects of pollution on human and animal health. The budgetary increase must be accompanied by suitable methods to maintain high quality peer review, and by a program that informs extramural investigators of topics and areas in which EPA administrators and scientists believe innovative research is needed.

The Conferees recommend that Congress authorize stand–alone extramural grants and training programs to be funded by annual appropriations. The Conferees are concerned that the current plan to improve research within EPA depends entirely on reprogramming funding appropriated for other purposes. Inevitably, administrative conflicts handicap this approach to increase the funding of extramural research.

The Conferees also urge EPA to implement methods to strengthen intramural research performed by scientists within the agency. The Conferees perceive that many intramural EPA scientists can no longer carry out effective investigations because of their huge administrative burdens. These heavy administrative re-

Environmental Protection Agency

"Scientific progress on a broad front results from the free play of free intellects, working on subjects of their own choice, in the manner dictated by their curiosity for exploration of the unknown. Freedom of inquiry must be preserved under any plan for Government support of science. . ."
Vannevar Bush. (1945) *Science: the Endless Frontier,* Washington, DC: National Science Foundation, NSF 90–8 (reprinted 1990).

sponsibilities ought to be relieved. The Conferees believe that implementation of a program of rigorous peer review of intramural research would greatly benefit its quality. The Conferees repeat a recommendation made a year ago, that the EPA develop and implement panels of independent experts to review intramural research programs analogous to the NIH's Board of Scientific Counselors. The Conferees urge the EPA to develop methods to support intramural research other than the established contract mechanism, which is not efficient and appears actually to have led to a diminution of hands–on research by EPA's excellent intramural scientists who are administering these contracts, rather than doing science.

Budget Recommendations

These important changes are essential to ensure that the regulatory activities of EPA rest on firm scientific foundations. To implement these recommendations, the Conferees recommend that the budget for the Office of Exploratory Research be increased to $120 million in FY 1996.

TABLE 10: ENVIRONMENTAL PROTECTION AGENCY
Life Science Funding and FASEB Recommendation
Fiscal Years 1994-1996 (Dollars in Millions)

Program	FY 1994	FY 1995	FY 1996	
	Appropriation (Actual)	Appropriation	FASEB Recommendation	% Change from FY 95
Office of Exploratory Research	$30.000	$60.000	$120.000	100%

Department of Defense

Agency Mission and Life Sciences Program

Biomedical research in the Department of Defense (DOD) is essential to maintaining the health of the armed forces during both combat and peacetime. The mission of the armed forces requires specialized, research–driven approaches to treatment of injury, prevention of disease, and promotion of health. Changes in weaponry, deployment of personnel to underdeveloped nations, and the rise of AIDS and other sexually transmitted diseases present significant challenges to military health. Recent experience illustrates how vulnerable our armed forces in Somalia, Iraq, and Haiti are to infectious diseases such as malaria, dengue, and cholera.

In addition to protecting our armed forces personnel from diseases in other countries and battlefield injuries, civilians also must be protected from the inadvertent transmission of infectious diseases by returning military personnel. Progress in trauma research can also make a beneficial contribution to the civilian population.

> ***"We must make a commitment to R&D. That is where the future is."***
> Charles A. Sanders (1994).
> Chairman, Glaxo Inc.

Issues

DOD is the second largest supporter of biomedical research in this country. The mechanisms and procedures by which DOD funds its intramural and extramural biomedical research programs should be carefully examined to assure that its programs are of high caliber, peer–reviewed, and funded in a manner that ensures the best products for the dollars spent. The administration of DOD biomedical research should be guided by the principles enunciated in the Memorandum for the Heads of Executive Departments and Agencies dated May 6, 1994, which stated the necessity to emphasize peer review, invest in human resources, invest in fundamental science, integrate civilian and military research programs wherever possible, and promote equity and diversity.

Regretably, the DOD provided insufficient information to FASEB to allow evaluation of the biomedical research programs. DOD reported FY 1995 appropriations of $294.9 million for its core biomedical research and $378.5 million for Congressional Interest Programs. These figures do not include salaries of military personnel, facilities maintenance, new laboratory construction, and other indirect research costs. There also was inadequate information provided for the breakdown of Air Force, Navy, and Advanced Research Projects Agency (ARPA) funding for biomedical and life science research.

Many state–of–the–art DOD technologies increasingly relevant to biomedicine are not identified as such in the DOD budget and, consequently, no information was provided to the committee on these activities. These include microelec-

Department of Defense

tronics, communications, signal processing, image enhancement and interpretation, and data fusion. These technologies have applications to telemedicine, x–ray and other radiographic analysis, pathology, image–guided surgery and surgical training, personal health status monitors, and protein structure prediction. ARPA and the Director for Defense Research and Engineering (DDR&E) are in a position to take a leadership role in enabling civilian biomedical investigators to use these technologies.

The committee was left with a sense that, even within DOD, there is no certain knowledge of how much is spent on biomedical research, although it is apparent that of all government agencies only NIH spends more. There are excellent reasons for DOD to engage in biomedical research, but DOD's failure to provide detailed information on funding and process precludes our ability to assess the quality of research, peer review, oversight, and productivity of this considerable investment. A coordinated and simplified command structure may be needed to alleviate these problems of identifying and reporting overall expenditures.

"The natural battlefield environment may pose greater hazards than the battle itself... While the proportion of hospital admissions due to disease, nonbattle injury, and battle injury has varied from war to war, infectious diseases have invariably produced higher admission rates and, until World War II, higher mortality rates than either nonbattle or battle injuries."

Llewellyn J. Legters and Craig H. Llewellyn. (1992) "Military Medicine." In John M. Last and Robert B. Wallace, eds, ***Public Health & Preventive Medicine.*** East Norwalk, CT: Appleton & Lange.

DOD anticipates that in the near future there will be a diminution in the number of laboratories in its intramural research program. The driving force behind this is the reduction in the size of the operating forces and in the number of military bases with research laboratories. FASEB views the magnitude of health and health–related problems that U.S. ground–fighting forces will face to be unrelated to the overall size of those forces. The magnitude of these health problems is principally related to the prevalence of diseases in other countries and of other health–related problems associated with the military and its mission. Thus, there is no rationale for reducing the effort to solve those problems. Research directed at finding solutions to crucial defense– related health problems can still be performed under the aegis of DOD by following the policies and principles of the Memorandum for the Heads of Executive Departments.

If the Administration is, in fact, considering closing half of the DOD's 76 medical and non–medical research and development laboratories, and if a significant number of these projects are still vital to the military and civilian population, a portion of the savings should be invested in medical research at extramural organizations through the peer–review process. Although some facilities unique to DOD research programs (e.g., highly specialized isolation and climatic simulation labs) may justify facility retention or new construction programs, the expanded use of extramural programs is the most desirable means of meeting the needed DOD biomedical research in the face of military facility and personnel reductions.

The FY 1994 budgets for the seven core areas of biomedical research is $266.2 million. For FY 1994, it is estimated that $141 million (about 53%) is spent on in–house DOD research and $48 million (about 18%) on research in academic institutions. The remaining $77 million (about 29%) is spent in industry or other Federal laboratories.

Funding for core programs rose to $294.9 million in FY 1995, an increase of 11% over FY 1994. Notably, there has been an increase in Congressional Interest Programs to be administered intramurally or extramurally by DOD. In FY 1994, this amount was $173.2 million and rose to $378.5 million in FY 1995, an increase of over 118%. Many new programs of dual military and civilian significance have been added that have not previously been considered to be part of DOD's mission. These include programs such as breast cancer ($155 million), prostate cancer ($14.3 million), ovarian cancer ($7.5 million), coastal cancer control program ($5.0 million), bone marrow registry ($34 million), and cell regulation ($2.0 million). Some of the Congressional Interest Programs have been effectively implemented by transferring support for them to other Federal agencies that employ well-established peer-review mechanisms, notably the Department of Veterans Affairs. In other instances, Congressional Interest Programs are implemented by DOD staff. It is not clear that DOD has the resources needed to assure that these internally administered Congressional Intent Programs are of the highest quality. FASEB believes that the funds devoted to Congressional Interest Programs can be used most productively through the integration of civilian and military research programs as suggested by the Memorandum for Heads of Executive Departments. Congress should include specific language to this effect in appropriations bills, thereby assuring that DOD-sponsored research is subject to open competition and peer review.

Recommendations

Biomedical research should continue to be supported by DOD because of its importance to the Department's military mission and its potential civilian applications. Its value to the nation is substantial, deriving from specialized needs of the military. However, DOD needs to explore alternative, cost-effective mechanisms for funding and managing its core programs. Especially for the Congressional Interest Programs, DOD should emphasize a vigorous peer-review process and increased integration with other Federal and civilian research programs. Because of the lack of comprehensive information, the Conferees were not able to make an overall funding recommendation for all DOD health and life sciences research programs.

Guest Speakers for Consensus Conference on FY 1996 Federal Research Funding in the Biomedical and Related Life Sciences

Wendy Baldwin, PhD
NIH Deputy Director for Extramural Research
National Institutes of Health

William Danforth, MD
Chancellor
Washington University

Kay Holcombe
Staff Member
United States House of Representatives
Energy and Commerce Committee

Charles A. Sanders, MD
Chairman
Glaxo, Inc.

Acknowledgments

The findings and conclusions of this report are based on the deliberations of eight subcommittees composed of representatives of FASEB's nine Member Societies. Final responsibility for the report and its recommendations rests with FASEB's Public Affairs Executive Committee (PAEC).

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The Consensus Conference was planned by the FASEB Office of Policy Analysis and Research (OPAR): Dr. Howard Garrison, Director; Mr. Stephen Heinig, Analyst; and Ms. Sandra Drury, Executive Secretary. Support for the Conference was also provided by the Office of Government Liaison: Mr. Gar Kaganowich, Director; Mr. Jonah Ben–Joseph, Government Relations Associate; and Ms. Noreene Wells, Executive Secretary. Assistance with layout and design was provided by Mr. Richard Dunn, Manager, Printing and Graphic Services Department.

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Mr. MYERS. The committee apologizes to the witnesses. We are on a tight schedule. We are hearing hundreds of witnesses and appreciate your cooperation. Your entire statements will be placed in the record. We will be as generous as we can be, but we are pressed for time also. Thank you.

TUESDAY, MARCH 28, 1995.

HUMAN GENOME PROJECT

WITNESS

DAVID P. BECK, PRESIDENT, CORIELL INSTITUTE FOR MEDICAL RESEARCH

Mr. MYERS. We are pleased now to hear Dr. David Beck, President of Coriell Institute for Medical Research.

Mr. BECK. Mr. Chairman, Mr. Bevill, it is a pleasure to be here today to tell you about an opportunity that we have to advance biomedical research very much along the lines that Dr. Silverstein was referring to.

I want to talk to you about establishing a national human cell repository center, a collection of cells from patients with various genetic diseases. Cells are very important in the kinds of work that go on in many areas of human genetic research including the kind of work that Dr. Silverstein talked about with regard to the human genome project. The cells from various genetic diseases have formed the foundation for that project.

There is an increasing need as a result of the progress being made for new sources of cells from patients with genetic diseases. These must be contamination free, must be very well characterized, and we must continue to make these kinds of resources available to scientists to take advantage of the results of the research that they have been doing.

As a scientist and President of the Coriell Institute for Medical Research, it is my job to oversee the acquisition, characterization, cataloging and shipment of cells to many DOE labs and NIH laboratories, centers for human genome research around the world; and in fact, every major research center in the world has received cells from the Coriell Institute. It is the world's largest provider of human cell cultures.

The Institute was founded in 1953 by a scientist, Dr. Lewis Coriell, who in fact developed much of the cell culture technology that has now become standard in the laboratories, and his original work in cell culture, developing cell culture technology in fact made the polio vaccine possible.

Biomedical science today is advancing very rapidly in diagnostic and therapeutic areas. Dr. Harold Varmis testified recently before Congress that we will be able to fix in the near future the ailing genes in various diseases, and, indeed, that is the goal of the kind of work that we are talking about.

We expect that it would be possible without overpromising to fix such diseases as diabetes and cystic fibrosis. The problem that we face, though, is maintaining the continuous supply of the kinds of genetic resources for scientists who want to continue to study these new diseases as the opportunities may become available.

In fact, there are some 4,000 or so known genetic diseases, and at the Coriell Institute we have about a thousand of them already in our collection; so there is still a long way to go and much work to be done.

An example of the kind of opportunities that we take advantage of when technology permits is the work that the Coriell Institute has done, for example, over the past year building its collection of cells from patients with breast cancer. As the genetic technology has moved to the point where we can understand cancer as a genetic disease, the scientific community has a great need for material from patients with breast cancer to be able to study these cells and to see the genetic panoply that makes the disease what it is.

We have in fact been developing over the past year as a corollary of this breast cancer resource a technique that allows us to amplify the DNA in cells from very rare and slow growing tumors such as breast cancer so that we can expand and make available this genetic resource to the community at large, far beyond where we could if we were just to supply just the cells alone.

We expect that the growth of the demand for cells to continue and only increase as the Coriell Institute's ability to keep pace with this demand is limited by space and the facility that we have and we would like to establish, take advantage of the march of technology, take advantage of the position that the Coriell Institute has found itself basically at the center of this human genome enterprise around the world to establish a national center for human cell, a national human cell repository center.

We would like to expand, we need to expand our current facility to provide the resources to the DOE labs, to the NIH laboratories and to scientists at every major research center. Establishing a facility from the ground up would be simply much too expensive and it would take too long to establish the kind of expertise and the kind of mechanics that Coriell has established in terms of finding the cells, finding the connections with the patients, characterizing the cells, cataloging the cells, and distributing them.

Coriell is positioned in a way that no other organization in the world is to provide this kind of service. We have a plan for establishing such a center and it is my belief that a Federal and private partnership in expanding and continuing to provide this service will be of enormous benefit to enable us to move biomedical research forward and provide the kind of resources that scientists must have to be successful in their work.

[The statement of Mr. Beck follows:]

TESTIMONY
OF
DAVID P. BECK, Ph.D., PRESIDENT
CORIELL INSTITUTE
BEFORE THE
ENERGY & WATER DEVELOPMENT SUBCOMMITTEE
HOUSE COMMITTEE ON APPROPRIATIONS

MARCH 28, 1995

Mr. Chairman and members of the subcommittee, I appreciate the opportunity to be here today to discuss with you the wisdom of establishing a National Human Cell Repository Center, and the importance of such a repository as a logical step in advancing cutting-edge biomedical research in the Department of Energy's (DOE) Biological and Environmental Research Program. There is a critical and increasing need for a contamination-free supply of human cells in high level research into genetic disorders, cancer, heart disease, and other serious human diseases.

As a scientist and President of the Coriell Institute for Medical Research, it is my job to oversee the acquisition, characterization, cataloguing and shipment of human cell cultures to the DOE and NIH centers for genome research and other high level research facilities around the United States and the world. Coriell Institute is the world's largest provider of such cell cultures.

By way of background, the Coriell Institute was founded in 1953 by Dr. Lewis Coriell, a scientist who developed pioneering techniques for growing human cells in culture and thus permitting their use in scientific research. Early on, Coriell technology was crucial in growing the cultures used in development of the Salk Polio Vaccine. Today, scientists throughout the world depend on Coriell cell cultures for use in disease research, and many research advances have depended directly on the cultures supplied by Coriell.

Biomedical science today is making rapid advances in both diagnostic and therapeutic techniques. For example, molecular antibiotics are being developed which can find and destroy the genes of an infectious organism in an utterly specific fashion, and gene-based therapeutic techniques are being tested through clinical trials for the treatment of such diseases as cancer. In short, we are on the proper scientific pathways which will one day make it possible to eliminate such diseases as diabetes and cystic fibrosis and other diseases which stem from defective genes.

Today, the problems associated with sustaining progress in advanced disease research stem from the fact that the volume of cells needed is growing and will continue to grow as the scientific community extends molecular genetic technology into new areas such as mental illness. Specifically, this means that of the 4,000 plus genetic diseases known to exist, only about 1,000 are banked and available as cell cultures. In order to procure and catalogue cell cultures for the remaining 3,000 diseases, a dedicated human cell repository is essential.

Mr. Chairman, the Coriell Institute has many responsibilities in its role as the nation's premier supplier of cell cultures. Of particular note is the role of Coriell Institute, in response to demands from the research community, in acquiring collections of specific cells for research into specific diseases. A case in point is one where, over the past year, Coriell has been building a collection of cells from breast cancer patients. Our scientists were involved for many years in the search for a mammary tumor virus, and have recently developed a new technology for whole genome amplification to make genetic material available from tumors from which cell lines are difficult to grow. This technique allows for access to rare and valuable tissue from patients with a family history of the disease.

The breast cancer initiative is a good illustration of the ways in which new frontiers can be crossed in studying diseases. It is also a telling illustration of a serious problem in advanced research -- specifically, the increasing demand for cell cultures and the related services which support high level research.

Mr. Chairman, as the individual responsible for the largest human cell repository in the world, I can tell you that a National Human Cell Repository Center is a critical next step to facilitate the most sophisticated research on genetic diseases. I believe, as do others in the field, that a national center which provides cells and genetic material to researchers around the country and abroad will greatly enhance the quality of medical research. As NIH Director Harold Varmus recently testified, "we foresee new means to prevent disease, and we anticipate the development of novel therapies for the next century, based on the delivery of genes to ailing cells, and drug design guided by molecular structures."

Novel therapies for the next century is the goal in disease research as NIH Director Varmus has pointed out. To accomplish that goal requires a consistent and reliable supply of cell cultures, the space to store such cultures and the human skill and equipment to support a state-of-the-art facility.

It is my belief that the establishment of a National Human Cell Repository Center will provide an essential component in support of disease research in both the Federal and non-Federal sectors. The Department of Energy has a long-standing interest in examining health effects of environmental factors; its founding of the Human Genome Project set in motion much of the exciting activity we see today in genetics research. In support of this project, Coriell Institute, during the past five years, has distributed hundreds of shipments of cell lines to DOE labs. While such activity has been important, it will be insufficient for future efforts in genetic research, which is why we need a National Repository.

Mr. Chairman, after studying the needs for and potential benefits of any national repository, I believe that establishing such a facility from the ground up would be excessively expensive, and require too much time in planning and execution. However, a National Center can be built by simply adding to an existing resource which is positioned to supply research demands into the next century. That resource is Coriell Institute.

Given Coriell's position as the world's largest human cell repository and its interaction with the DOE and NIH labs, it makes perfect sense to establish a National Center in a public-private partnership fashion, particularly given the Federal Government's long-standing and continued support for medical research. By making an investment in a National Human Cell Repository Center, the Federal Government can help to ensure the availability of human cells for disease research scientists throughout the United States and the world.

Mr. Chairman, the Coriell Institute already has a plan for establishment of a National Repository, and we are prepared to move forward immediately. In summary, it is my belief that Federal investment toward this end will produce tremendous benefits and that, considering the cost of disease to this country and the potential for missed research opportunities if we do not move forward, we cannot afford not to establish a National Cell Repository.

Thank you for your attention. I will be happy to answer any questions.

Mr. MYERS. How does your Coriell differ with the DOD cell lab now?

Mr. BECK. Our primary responsibility is to collect cells from patients from a wide variety of diseases and take these cells into the laboratories, characterize them in certain ways and expand them and freeze them in our liquid nitrogen freezer.

Mr. MYERS. Don't we have a program in DOD that we have financed?

Mr. BECK. There are smaller programs around the world for very specific purposes. But for cells available to the research community abroad, overall, there is no facility like Coriell. So if you as a scientist say I am interested in studying diabetes or breast cancer, unless you have your own source of cells, you need to come to a place like Coriell.

Mr. MYERS. You can't synthesize the cells?

Mr. BECK. Unfortunately not.

Mr. MYERS. Thank you very much.

TUESDAY, MARCH 28, 1995.

PROTON THERAPY

WITNESS

LEONARD ARZT, EXECUTIVE DIRECTOR, THE NATIONAL ASSOCIATION FOR PROTON THERAPY

Mr. MYERS. Next is Leonard Arzt, Executive Director of the National Association for Proton Therapy.

Mr. ARZT. Thank you for the opportunity to again update the subcommittee on the latest progress of proton therapy for cancer treatment.

As you know, the world's first proton treatment center continues to treat patients daily at Loma Linda University Medical Center in Southern California. A few years ago, this committee generously supported the research and development and subsequent technology transfer of proton therapy to the pioneering work at the Loma Linda Proton Treatment Center.

I am pleased to report that the Proton Center has completed four years of health care service treating cancer patients from more than 40 States and many foreign countries. Presently Loma Linda remains the only primary patient-oriented treatment facility in the world, providing radiation oncologists with an effective way of delivering a high dose of radiation to a localized cancer with considerably less side-effects than the conventional radiation method. For certain tumor sites, proton therapy is also becoming the preferred choice over invasive surgical procedures.

The success of this technology is being watched closely by many medical institutions. Physicians at Massachusetts General Hospital, where the second dedicated patient proton treatment facility is under construction, are paying close attention to the breakthrough work being done at Loma Linda. Although several years away from completion, Massachusetts General will add protons renowned advanced medical research and education and add a significant enhancement to cancer treatment options in the northeastern region.

It is also worth pointing out, Mr. Chairman, that in your home State at Indiana University's Cyclotron Facility, staff and equipment are in place to begin treating cancer patients with protons from a fixed beam environment. A task force is currently looking into the feasibility of establishing a clinical program.

I am pleased to report that Loma Linda passed another milestone in the development of proton therapy with the recent completion of its third gantry system. This increases the number of treatment stations to five and makes it possible to treat up to 100 patients a day. So far, Loma Linda has treated more than 1,300 patients, nearly half being prostate cancer patients.

Most of these 600 prostate patients came to Loma Linda after educating themselves about treatment options and making informed choices. With a body of more than 600 prostate patients to study, Loma Linda has embarked on an extensive research and tracking program checking out every prostate patient to determine their post therapy condition. The results will be published this summer in the medical journals. Some four years beyond treatment, the preliminary expectation is insignificant reoccurrence of the cancer.

Recently Dr. James Slater, Director of the Treatment Center at Loma Linda said, one of the primary advantages of proton treatment is that protons can be precisely aimed at three-dimensional tumors reducing the damaging effects to normal surrounding tissues and organs. He said, this allows us to increase the dose to the targeted tumor cells. Its noninvasive character allows the procedure to be done on an outpatient basis because no discomfort or pain is experienced.

Dr. Slater has also mentioned that protons are also favorably used with other modalities such as surgery and/or chemotherapy because of the significant reduction in normal tissue injury. It is important to note that Loma Linda reported that 176 health insurance carriers provided full patient coverage to proton therapy treatment. Treatments include tumors of the eye, brain, neck, lung, pancreas, bladder and, in the near future, breast cancer.

Besides patient care, protons are now being used at the Nation's space program. Last December a partnership was formed with Loma Linda and NASA. A Memorandum of Agreement was signed formally establishing scientific collaboration which will utilize the proton center and its staff to assist NASA researchers in protecting astronauts and scientific equipment from the natural radiation of space.

At a formal signing ceremony attended by California Congressman Jerry Lewis, and with NASA scientists, and Loma Linda physicians, NASA's administrator, Dan Goldin, said: This agreement is going to have a huge impact on the space program. Without Loma Linda's proton beam accelerator, the space program would have been in trouble. This is the ultimate technology transfer.

The proton research project with NASA permits researchers to use the proton facility to simulate the proton radiation emitted by the sun during solar flares. It is a five-year program that does not involve experiments on human subjects. Congressman Lewis said, this is an exciting project with five years of clinical experience and hundreds of cancer patients coming from across the country; this new research component to the Proton Center is a further demonstration of the high technology center of excellence being created at Loma Linda.

In closing, I am aware of this committee's concern for reducing spending. I have no funding request today. The technology transfer to the private sector supported by this committee is working. Proton development is moving forward in establishing a commercial market for the 1990s.

The Congress and Department of Energy showed foresight in recognizing the future health care potential for proton therapy. What is now possible is a broader use of this new cancer treatment modality to meet the needs of the American people.

Thank you again for your investment.

[The statement of Mr. Arzt follows:]

The
National
Association
for Proton
Therapy

Testimony Presented
to the
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives

March 28, 1995

7910 Woodmont Avenue, Suite 1303, Bethesda, MD 20814, Telephone 301/913-9360, Fax 301/913-0372.

Thank you, Chairman Myers, for the opportunity to again update the subcommittee on the latest progress of proton therapy for cancer treatment. As you know, the world's first Proton Treatment Center continues to treat cancer patients daily at Loma Linda University Medical Center in southern California.

A few years ago, this committee generously supported the research and development and subsequent technology transfer of proton therapy to the pioneering work at the Loma Linda Proton Treatment Center. I am pleased to report the Proton Center has completed four years of health care service treating cancer patients from more than 40 states and many foreign countries. Presently, Loma Linda remains the only primary patient-oriented treatment facility in the world providing radiation oncologists with an effective way of delivering a high dose of radiation to a localized cancer with considerably less side effects than the conventional radiation method. For certain tumor sites, proton therapy is also becoming the preferred choice over invasive surgical procedures.

The success of this technology is being watched closely by many medical institutions. Physicians at Massachusetts General Hospital, where the second patient-dedicated proton treatment facility is under construction, are paying close attention to the breakthrough work being done at Loma Linda. Although several years away from completion, Mass General will add protons to its renown advances in medical research and education and add a significant enhancement to cancer treatment options in the northeastern region.

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In a number of recent medical talks, Dr. James Slater, director of the treatment center said: "...One of the primary advantages of proton treatment is that protons can be precisely aimed at a three-dimensional tumor reducing thet damaging effects to normal surrounding tissues and organs.

"This allows us to increase the dose to the targeted tumor cells. Its non-invasive character allows the procedure to be done on an outpatient basis because no discomfort or pain is experienced." Dr. Slater has mentioned that protons are also favorably used with other modalities such as surgery and/or chemotherapy because of the significant reduction in normal tissue injury. It is important to note that Loma Linda reported that 176 health insurance carriers provided full patient coverage to proton therapy treatment. Treatments include tumors of the eye, brain, head and neck,lung, pancreas, bladder, and, in the near future, breast cancer.

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At a formal signing ceremony, attended by California Congressman Jerry Lewis along with NASA scientists and Loma Linda physicians, NASA's Administrator, Daniel S. Goldin, said: "This agreement is going to have a huge impact on the space program. Without Loma Linda's proton beam accelerator, the space program would have been in trouble. This is the ultimate technology transfer."

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Research work is also being performed at the new Loma Linda University Research Institute seeking to broaden the benefits of protons by extending their effects beyond the local tumor site. By combining proton treatment with other treatment modalities, including monoclonal antibodies, the advantages of protons may be expanded to benefit patients with more advanced disease.

Mr. Chairman, in closing, I am aware of this committee's concern for reducing spending. I have no funding request today. The technology transfer to the private sector supported by this committee is working. Proton development is moving toward and establishing a commercial market for the 1990s. The Congress and the Department of Energy showed foresight in recognizing the future health care potential for proton therapy. What's now possible is a broader use of this new cancer treatment modality able to sustain itself and meet the needs of the American people. We thank you again for your investment.

LEONARD ARZT, Executive Director

Mr. MYERS. Thank you. A question: A few weeks ago we had a former congressional staff member who had a very advanced brain tumor and we were told that you couldn't treat it at Loma Linda?

Mr. ARZT. I have treated a lot of brain tumors at Loma Linda. It depends on the site and whether or not it is localized or whether it has spread.

Mr. MYERS. Thank you for your testimony. Thank you for the job you are doing.

TUESDAY, MARCH 28, 1995.

NUCLEAR PROGRAMS

WITNESS

PHILLIP BAYNE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, NUCLEAR ENERGY INSTITUTE

Mr. MYERS. Phillip Bayne, President and Chief Executive Officer of Nuclear Energy Institute.

Mr. BAYNE. Thank you. Mr. Chairman, I would like to focus my remarks today on the need for the Federal Government to honor commitments made to consumers of electricity generated at America's 109 nuclear power plants. Honoring these commitments is vital to the direction of U.S. energy policy.

The United States and the rest of the world is approaching a crossroads, two possible futures in terms of energy supply. Down one path lies a world in which we fail in our responsibility to meet the energy needs of the growing world population in which we do not supply the energy needed to ensure that most people are fed, sheltered, educated and employed.

But down the second path lies a brighter world in which energy development is managed in a responsible, sustainable way, in which we use science and technology—including nuclear energy technology—to generate the energy we will need to power our economy and fight poverty, sickness, and environmental devastation.

World energy supply must double or maybe triple over the next 50 years. Nuclear energy must be a vital component of an energy mix that generates power for economic growth and protects the global environment.

To continue to harvest those benefits and develop a new generation of advanced nuclear technology, the Federal Government must fulfill two commitments with utilities that own and operate nuclear power plants and their customers.

Foremost, the Federal Government must live up to the deal it made with electricity consumers through the Nuclear Waste Policy Act of 1982 and binding contracts it entered into with utilities to safely manage spent nuclear fuel.

The legislation charged DOE with developing a system for managing spent fuel by 1998. In return, utility customers that use electricity generated at nuclear power plants paid a surcharge to cover the cost of the program. To date, those collections, plus interest and other obligations, exceed $10 billion. The Federal Government has our customer's money, but has not provided a solution for spent nuclear fuel.

As we all know, DOE's current program will not provide for the movement of fuel from utility sites until 2010 at the earliest. We believe the government must develop an integrated spent nuclear fuel management system—including a central storage facility—to satisfy its commitments.

Legislation introduced by Representatives Upton and Towns would develop such an integrated approach to spent nuclear fuel management and give the Department of Energy the wherewithal to begin accepting spent nuclear fuel in 1998.

A key component to the development of this system is funding. DOE must have access to money in the Nuclear Waste Fund, including the $4 billion balance of the fund. The Upton-Towns legislation would provide this access to the NWF, yet maintain congressional oversight with this committee and your counterparts in the Senate.

Mr. Chairman, electricity consumers have held up their side of this contract. Now the Federal Government must do the same. This subcommittee can take the first step by supporting legislation to provide DOE full access to the Nuclear Waste Fund and instructing DOE to restructure its budget priorities for the following activities:

One, the development and licensing of an interim storage facility and multipurpose canister system to ship and store spent fuel. The acquisition of rights of way and construction and operation of a railroad to connect to existing rail lines; and the development of a repository.

Congress made another commitment to American electricity consumers in the Energy Policy Act of 1992 when it provided a multi-year authorization for reactor design certification and first-of-a-kind engineering on the advanced light water reactor. These programs support the commercialization of advanced reactor designs.

There is significant interest in developing this new generation cost-shared basis between the Energy Department and the industry. Since 1986, the nuclear power industry has contributed $487.3 million for research and development activities. DOE has contributed $394.4 million.

However, despite long-standing congressional support for these programs, the Administration's fiscal year 1996 budget recommends reducing funding for the Advanced Light Water Reactor program to $49.7 million, 14 percent lower than the fiscal year 1995 allocation.

These program cuts and program plans by DOE to reduce funding for nuclear research and development activities run counter to the goals and objectives supported by Congress, and do serious damage to this country's ability to meet the long-term electricity needs of our citizens and our economy.

Mr. Chairman, this subcommittee must take the first step to reaffirm Congress' commitment to nuclear energy in this country. Together, we must assure electricity customers that DOE's programs to manage spent nuclear fuel and develop advanced nuclear technology will progress in a timely manner.

Thank you very much.

Mr. MYERS. Thank you for your testimony Mr. Bayne.

[The statement of Mr. Bayne follows:]

TESTIMONY OF PHILLIP BAYNE
PRESIDENT AND CHIEF EXECUTIVE OFFICER
NUCLEAR ENERGY INSTITUTE

BEFORE THE

UNITED STATES HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
OF THE
COMMITTEE ON APPROPRIATIONS

MARCH 28, 1995

Mr. Chairman and Members of the Subcommittee:

I am Phillip Bayne, president and chief executive officer of the Nuclear Energy Institute (NEI). I am pleased to appear before you today to present NEI's views on the administration's budget request for certain nuclear energy programs for fiscal year 1996.

NEI represents more than 350 companies and organizations worldwide, including all U.S. electric utilities that operate nuclear power plants, nuclear plant equipment suppliers, engineering/construction firms, nuclear fuel cycle companies, suppliers of radionuclides and radiopharmaceuticals, law firms, consulting firms and labor unions.

We would like to thank members of this subcommittee for consistently supporting the proposition that nuclear energy must continue to be an essential component of the nation's energy mix. Electricity provides one of the cleanest sources of energy as we strive to protect our environment while maintaining a desirable quality of life. Generating electricity at nuclear power plants produces no air pollutants or greenhouse gases, and is recognized as an important source of energy by those seeking workable solutions to our environmental and energy demand needs.

While the administration's FY96 budget proposal affects several components of the nuclear energy industry, I would like to focus on three issues: the Department of Energy's civilian high-level nuclear waste disposal program, funded through the Office of Civilian Radioactive Waste Management (OCRWM), user fees charged to nuclear utilities to fully fund the Nuclear Regulatory Commission, and the advanced reactor research and development effort funded through DOE's Office of Nuclear Energy.

Spent Nuclear Fuel Management

Developing an integrated spent nuclear fuel management system is one of the most critical environmental issues facing our nation. The United States simply must resolve this important issue. The nuclear energy industry stands ready to work to develop an integrated spent nuclear fuel management system—including a central interim storage facility; a permanent disposal facility; multipurpose canisters to hold used fuel during transportation, storage and disposal; and a transportation network.

The nuclear energy industry has general principles that we believe should guide Congress as it reshapes the current DOE program:

- DOE must accept its responsibility to develop and begin implementing a waste management system that is capable of removing spent fuel from nuclear reactor sites beginning in 1998.
- Congress must designate a location for, and mandate construction of, a federal interim storage facility and the necessary transportation network to

ensure access to the facility from existing rail lines.

- Milestones must be established for the development of the interim storage facility, transportation infrastructure and multipurpose containers to support spent fuel acceptance no later than Jan. 31, 1998.

- The current schedule for development of a repository must not be delayed. Disposal of spent fuel remains the ultimate program objective.

DOE must gain access to money in the Nuclear Waste Fund, including the existing balance of the fund. Current budgetary constraints have created a situation where Congress is unable to provide Department of Energy access to the balance of the NWF. Legislation before the House and Senate would provide access to the more than $4 billion in the NWF, but maintain congressional oversight by the Senate and House Appropriations committees. Access to the balance would speed the progress of site characterization at Yucca Mountain and provide the funding needed to develop other components of the integrated spent nuclear fuel management system—a central interim storage facility, multi-purpose canisters, and transportation facilities. With these components, the federal government would have a system in place to meet its pledge to nuclear utility customers to manage spent nuclear fuel.

Under the Nuclear Waste Policy Act (NWPA) and the standard contract between DOE and utilities, the federal government has the responsibility to begin taking spent nuclear fuel in 1998. Utilities and their customers have since 1983 paid a one-mill per kilowatt-hour fee to fund this program. To date, those collections, plus interest and other obligations, exceed $10 billion.

Electricity consumers have held up their side of the contract. The federal government must do the same. DOE has stated it will not meet its 1998 responsibility absent a significant change in program direction. By 1998, 26 reactors will have exhausted existing spent fuel storage capacity. By 2010, the earliest date a repository could be operating, 80 units will have depleted current storage capacity.

Mr. Chairman, as the members of this subcommittee well know, utilities and state regulators are increasingly concerned about the equity of requiring utility customers to pay for both the DOE civilian radioactive waste program and additional at reactor storage. One of the most vivid examples of the growing frustration over this program are separate lawsuits filed against the Energy Department by 17 utilities and 28 states asking the Circuit Court of Appeals to rule that the DOE must begin accepting spent fuel beginning in 1998.

DOE recognizes that failing to meet its 1998 responsibility will cause utilities and their customers to face significant costs associated with expanding spent fuel storage at reactor sites. The Energy Department has recognized the need for—and sought—higher annual appropriations from the Nuclear Waste Fund to maintain project schedules at the proposed repository at Yucca Mountain. And, more recently, Secretary O'Leary, for the first time, has requested the authorization to built federal interim storage capability.

The industry welcomes these positive signs. By themselves, however, they do not solve the problem. The nuclear waste disposal problem will be solved only when the federal government satisfies its unconditional obligation to begin accepting spent nuclear fuel beginning in 1998.

We are ready to work with the administration and Congress in the development of an integrated spent nuclear fuel management system that can satisfy DOE's commitment to electricity consumers beginning in 1998.

The industry recognizes that any interim storage program will be meaningful only if DOE continues to make progress in developing a permanent repository. To resolve licenseability issues at Yucca Mountain in a timely manner, site characterization activities must be fully and properly funded.

The administration's FY96 budget request recognizes the need for increased funding to resolve this national environmental issue. DOE has requested $630 million for site characterization of Yucca Mountain—26 percent more than the FY95 allocation. The nuclear energy industry recommends that DOE restructure its budget priorities to reflect the need for a centralized interim storage facility in 1998 and asks this subcommittee instruct the Energy Department to allocated funding in the following order of importance—1) the development and licensing of an interim storage facility and multipurpose canister system to ship and store spent fuel, 2) the acquisition of rights of way and construction and operation of a railroad to connect to existing rail lines, and 3) the development of a repository.

We support comprehensive legislation introduced by Reps. Fred Upton and Edolphus Towns that provides a release of the funding from restrictions imposed by discretionary spending caps and creates an integrated spent fuel management system.

NRC Budget/Regulatory Review

Since FY91, licensees of the Nuclear Regulatory Commission have shouldered the entire cost of the agency's budget through annual user fee payments. Of the NRC's FY95 budget, 85 percent—$504 million—is recovered by assessing user fees to utilities and their customers. The average utility licensee pays $2.9 million per nuclear power plant plus an average of $1 million per plant in hourly charges for NRC activities. This level of support is unique to the nuclear energy industry.

The nuclear energy industry has a profound interest in ensuring that the NRC's costs are no higher than required for the agency to ensure protection of public health and safety. We are also dedicated to ensuring that the percentage of NRC costs paid by our members is no higher than the percentage of agency resources dedicated to regulating our industry.

Unfortunately, there is a pressing need for improvement in containing the NRC budget and in ensuring the equity of the NRC's user fee policy. The NRC's budget request for FY96 is $525.8 million, which represents an effort on the commission's part to control costs over the past two years.

However, since FY90—the year before Congress instituted 100 percent user fees to fund the NRC budget—the commission budget has increased by approximately 25 percent. There is clear evidence of budget and management inefficiencies at the NRC. The NRC Inspector General (IG) has published several reports since 1992 that document management deficiencies at the NRC that can be directly attributed to its user fee policy. The total cost of these and other management problems identified by the IG is in the tens of millions of dollars.

Congress should consider instituting an independent NRC budget and programmatic review. In addition to reviewing NRC programs and budgets to ensure their cost-effectiveness, the review committee should also allow licensees input into the NRC budget process.

A 1994 NRC staff report details a number of injustices, and includes several recommendations for legislative action that would inject a measure of fairness into the current fee structure. The study found that utilities pay at least $35.1 million annually in fees to support activities that have no bearing on the regulation of commercial nuclear energy facilities.

Given the serious nature of these findings, we feel it is incumbent upon the NRC to work with the Office of Management and Budget and others to redress the inequities of the fee structure. We also urge this subcommittee to support any policy changes recommended by the NRC to begin this process before the start of the new fiscal year.

Mr. Chairman, I would also like to report to the subcommittee the results of an assessment of the U.S. nuclear regulatory process that documents situations and issues where NRC regulations or the regulatory process do not achieve the desired effect. The consulting firm Towers Perrin interviewed chief executive officers, senior nuclear executives, plant managers and other personnel at nuclear utilities to gather views on the impact of the regulatory process.

The report—*Nuclear Regulatory Review Study*—reflects a number of serious industry concerns about that process. As the industry has indicated to the commission many times in the past, the industry believes the NRC uses a number of subjective, informal regulatory instruments to exert pressure on nuclear utilities to comply with NRC staff demands and expectations, well beyond what is required by formal regulations.

The industry is seeking to redefine the relationship between the NRC and its nuclear utility licensees to achieve a regulatory environment that: 1) preserves the commission's statutory mandate to protect public health safety; 2) preserves the licensee's ultimate responsibility for safe operation; and 3) meets certain fundamental criteria of openness, clarity, and consistency.

As an industry, we believe the report correctly identifies the existence of problems at the interface between the NRC and its licensees, and we believe those problems deserve serious, even-handed consideration. There is no simple fix for these problems. Rather, they require long-term, persistent effort. Only strong leadership by the NRC senior management, coupled with a coordinated commitment by the nuclear utility industry, can correct these deeply rooted problems and provide the regulatory framework in which nuclear utilities can operate their plants safely and at a reduced cost to consumers of electricity generated at these facilities.

Advanced Reactor Research And Development

In the area of advanced nuclear energy research and development (R&D), the Energy Policy Act of 1992 provided a multi-year authorization for the Advanced Light Water Reactor (ALWR) design certification and first-of-a-kind engineering (FOAKE) programs to support the commercialization of advanced reactor designs on the basis that the industry provide at least half of the funding. The law also authorized continued support for research and development on advanced reactor technology, leading to a selection of one or more technologies as early as 1998 for the construction of a demonstration facility.

Despite congressional support for these programs, the administration's FY96 budget recommends reducing funding for the ALWR program to $49.7 million, 14 percent lower than FY95 allocations, and termination of the Gas Turbine Modular Helium Reactor and Advanced Liquid Metal Reactor programs. Of $192 million in the Office of Nuclear Energy's total request, $49.7 million for ALWR research and development is the sole support for the development of commercial nuclear energy options for future electricity generation.

We believe these program cuts and long-range plans by DOE to reduce funding for nuclear research and development activities run counter to the goals and objectives supported by Congress in the Energy Policy Act of 1992, and do serious damage to this country's ability to meet the long-term electricity needs of our population and economy. This subcommittee must take the first step to reaffirm Congress' commitment to maintain and advance nuclear energy in this country, and to assure that DOE's advanced nuclear technology program is progressing in a timely manner.

TUESDAY, MARCH 28, 1995.

DEPARTMENT OF ENERGY RESEARCH AND DEVELOPMENT PROGRAMS

WITNESS

AMOS E. HOLT, SENIOR VICE PRESIDENT, COUNCIL ON ENGINEERING, THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Mr. MYERS. Amos Holt, Senior Vice President, Council on Engineering, the American Society of Mechanical Engineers. Your prepared statement will be placed in the record and you may proceed for five minutes.

Mr. HOLT. Thank you, Mr. Chairman and members of the subcommittee. I am Amos Holt, the Senior Vice President, Engineering, of the American Society of Mechanical Engineers, ASME. I am pleased to have the opportunity to testify before you today on the Department of Energy's 1996 budget request.

Our society is 114 years old and our current membership 125,000. Approximately 25,000 of those are mechanical engineers and university students. My testimony today was prepared by a task force of the Energy Resources and Energy Conversion Groups from the ASME Council on Engineering comprised of engineers in industry, academia, and government. This testimony represents the considered judgment of the task force, and is not necessarily the position of ASME as a whole.

In our view, energy issues are still front-burner issues. More than a quarter of ASME's technical divisions are devoted to energy technologies. We are concerned that the ongoing national security debate underway in the 104th Congress is limited to the Nation's military agenda. We believe the Nation's security is also dependent upon our energy and economic security. Therefore, in our view, decisions about national security should include these issues.

Economic security without energy security cannot be achieved. That is why I am pleased to be here today to discuss with you our thoughts and recommendations as to how to best use the limited resources available.

In 1992 the Congress passed, and President Bush signed into law, the Energy Policy Act. This was the first time in more than a decade that the Federal Government formally acknowledged through authorizing legislation a national energy strategy. Groups within ASME responded by offering testimony in support of provisions of the law that call for DOE to develop five-year plans for the pursuit of R&D programs in several energy technology areas. Indeed, at the Department's request, last year we commented in a formal manner on two such plans prepared by the DOE in response to EPACT. These were in the areas of advanced nuclear reactor research and renewable energy technologies. I would like to highlight some key findings of the task force.

A task force of ASME's Nuclear Energy Division prepared a review of the DOE Draft Five-Year Plan for Advanced Reactor Activities in May 1994. The task force concluded that the elimination of government support for the technologies embodied in advanced reactors was contrary to the national goal of achieving energy independence and security.

In particular, they held that the termination of the Actinide Recycle Program was inconsistent with the fact that the program was on the verge of demonstrating the viability of the procedure for disposing of high level nuclear waste.

Clearly the disposition of nuclear waste remains a major impediment to the construction and deployment of nuclear electric energy power generation facilities in the United States.

Renewable energy technology. A task force reviewed the DOE draft R&D multi-year plan for renewable energy technologies. The task force reviewed recommendations with great emphasis that should be given to the advanced concepts such as innovative solar power conversion processes and advanced energy conservation technologies that support the demand side management. These are examples of research opportunities that were not addressed in the DOE program plan.

In our full written statement, there are positive recommendations.

Finally, I would like to address the role of engineering research and engineering education in the overall process of maintaining and strengthening our U.S. energy and economic security. Engineering know-how is essential to converting the scientific results of the physical, chemical, mathematical, and biological research funded within DOE into marketable products.

The administration's fiscal year 1996 budget request for R&D within the DOE calls for an increase of $488 million in current dollars over the 1995 budget estimate. This represents a real growth of 4.2 percent in constant dollars from last year. Yet the support for energy R&D at colleges and universities, where the seeds of new ideas and visions are nurtured, will actually decline by 1.5 percent in real terms.

Clearly some very difficult decisions will have to be made as the Congress weighs the need to maintain a strong Federal support for good science and engineering against the needs for reduced overall Federal spending. We would urge that as you deliberate the priorities of the R&D DOE budget proposals this year, every consideration be given to sustaining a strong educational component in the R&D sector.

This concludes my testimony, and ASME is engaged in energy in many different ways and we will support this committee in any deliberations in any way possible.

Mr. MYERS. Thank you very much for your testimony.

[The statement of Mr. Holt follows:]

The AMERICAN SOCIETY of MECHANICAL ENGINEERS

FOUNDED 1880

Statement on the FY 1996 Budget Request for the Department of Energy

Submitted by

a Task Force of the
Energy Resources Group and
the Energy Conversion Group
of the
Council on Engineering

of the

American Society of Mechanical Engineers

to the

Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
March 28, 1995

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Mr. Chairman and Members of the Subcommittee:

I am Amos Holt, the Senior Vice President, Engineering, of the American Society of Mechanical Engineers (ASME), and I am pleased to have this opportunity to testify before you today on the Department of Energy's FY 1996 budget request. Our Society is 114 years old and our current membership of 125,000 includes approximately 25,000 students of mechanical engineering. My testimony today was prepared by a task force of the Energy Resources and Energy Conversion Groups of ASME's Council on Engineering. These groups comprise eight technical divisions whose 18,000 members are engineers from industry, academia and government. This testimony represents the considered judgement of the task force, and is not necessarily a position of ASME as a whole.

In our view, energy issues are still front-burner issues. More than a quarter of ASME's 37 technical divisions are devoted to energy resources, conversion and research, as well as fluid power systems and heat transfer. We are concerned that the ongoing national security debate underway in the 104th Congress is limited to the nation's military agenda. We believe the nation's security is also dependent upon our energy and economic security. Therefore, in our view, decisions about national security should include these issues. Economic security without energy security cannot be achieved. That is why I am pleased to be here today to discuss with you our thoughts and recommendations as to how to best apply limited federal R&D resources to assure U.S. energy security.

In 1992, the Congress passed, and President Bush signed into law, the Energy Policy Act (EPACT). This was the first time in more than a decade that the federal government formally acknowledged through authorizing legislation a national energy strategy. Groups within ASME responded by offering testimony in support of provisions of the law that call for the Department of Energy to develop five-year plans for the pursuit of R&D programs in several energy technology areas. Indeed, at the Department's request, last year we commented in a formal manner on two such plans prepared by the DOE in response to the EPACT. These were in the areas of advanced nuclear reactor research and renewable energy technologies. I would like to highlight the key findings of the ASME task forces that reviewed these documents.

Advanced Nuclear Reactor Research

A task force of ASME's Nuclear Engineering Division prepared a review of the DOE Draft Five-Year Plan for Advanced Reactor Activities in May 1994. The task force concluded that the elimination of government support for the technologies embodied in advanced reactors was contrary to the national goal of achieving energy independence and security. In particular, they held that termination of the actinide recycle program was inconsistent with the fact that the program was on the verge of demonstrating the viability of the procedure for disposing of high level nuclear waste. What better way to invest limited federal R&D dollars for advanced nuclear energy research than to support a fundamentally unique, yet technically sound, long term research enterprise that could lead to a safe, efficient and economic procedure for processing the nation's nuclear waste? Clearly the disposition of nuclear waste remains a major impediment to the construction and deployment of nuclear electric energy production facilities in the U.S.

Renewable Energy Technologies

A task force of ASME's Energy Resources Group reviewed the DOE draft R&D multi-year plan for renewable energy technologies. The task force's review recommended that greater emphasis should be given to advanced concepts such as innovative solar power conversion processes and advanced energy conservation technologies that support demand side management. These are examples of research opportunities that were not addressed in the DOE program plan.

Refocusing research funding to develop innovative ideas, many of which reside at our universities, for utilizing renewable energy resources that are not yet available to the marketplace, would be a productive use of scarce federal funding for a long range renewable energy research program.

Engineering Research and Education

Finally, I would like to address the role of engineering research and engineering education in the overall process of maintaining and strengthening our U.S. energy and economic security. Engineering know-how is essential to converting the scientific results of the physical, chemical, mathematical and biological research funded within the Department of Energy into marketable products. The Administration's FY 1996 budget request for R&D within the DOE calls for an increase of $488 million (in current dollars) over the FY 1995 budget estimate. This represents a real growth of 4.2% in constant dollars over last year. Yet, the support for energy R&D at our colleges and universities, where the seeds of new ideas and visions are nurtured, will actually decline by 1.5% in real terms. Clearly, some very difficult decisions will have to be made as the Congress weighs the need to maintain a strong federal support for good science and engineering against the need for reduced overall federal spending. We would urge that, as you deliberate the priorities in the Department's R&D budget proposals this year, every consideration be given to sustaining a strong educational component of our energy R&D mix.

This concludes my testimony. Again, I thank the Chairman and the Subcommittee for providing me this opportunity to participate in this important hearing. As energy technology development is central to the field of mechanical engineering, we are vitally concerned with the programs and budgets of the DOE. We offer our assistance in any way possible to the deliberations of this Subcommittee.

I would be pleased to respond to any questions you may have.

TUESDAY, MARCH 28, 1995.

SOLAR PROGRAMS

WITNESSES

HON. DAVE WELDON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

DAVID L. BLOCK, DIRECTOR, FLORIDA SOLAR ENERGY CENTER

RUDY SCHOENMACKERS, DIRECTOR, SOUTHWEST TECHNOLOGY DEVELOPMENT INSTITUTE

Mr. MYERS. The committee is pleased to welcome our colleague from Florida, Dave Weldon. The statements will be placed in the record.

Mr. WELDON. Thank you, Mr. Chairman, and members of the subcommittee. It is a pleasure to be here to introduce Dr. David Block who is the director of the Florida Solar Energy Center.

As our district and as many other high tech areas of the country have been experiencing declines with defense cutbacks, we are looking to new areas of investment for creating new high quality, high tech jobs; and the Florida Solar Energy Center is an area where we are investing not only manpower from our district but as well as some of our State resources for research into areas of developing clean, new technologies for providing energy for our Nation's needs.

I would like to introduce Dr. Block to give his testimony.

Mr. MYERS. Thank you. Mr. Block, your entire statement will be placed in the record.

Mr. BLOCK. This testimony is given with Dr. Rudy Schoenmackers of New Mexico State University. He is in the corner. We want to thank you for an opportunity to present our views on what we consider to be the challenges facing our country in terms of energy, jobs, and economic development.

Perhaps more than any other energy resource, renewable energy technologies offer the greatest potential for market industry and job creation. These technologies provide energy services to all sectors of our economy. The facts show that alternative energy industries are more labor intensive than the fossil fuel or nuclear fuel industries, creating an estimated 12 to 18 jobs per million dollars of direct expenditures compared with two to three jobs per million for the traditional energy industries.

When indirect employment and sales benefits are counted, these dollar values more than double. But beyond the idea of job creation, renewable energy technology has the potential to create and expand our export markets for U.S.-made goods, which further benefits our economy.

Our written testimony discusses two technologies, photovoltaics and hydrogen. I will not go into details today. I want to recap three very important issues.

Issue one, our global friends and economic competitors clearly see the potential of the growing renewable energy market. In the past year, Europe has passed the Japanese as the second largest photovoltaic producer.

The U.S. companies must be competitive and R&D is critical to their being competitive. I appeal to Congress to make the commitment to support R&D to ensure that U.S. technology wins.

The second issue is that our foreign competitors have taken over in technologies invented by the U.S. German-owned Siemens Solar is the largest photovoltaics producer in the U.S. after buying Arco Solar in the early 1990s. Last summer, a German consortium owned by utility giant RWE AG and Daimler-Benz bought control of Mobil Solar, and are intent on taking large off-grid markets in Mexico and South America. These markets are the United States' market.

The Japanese have a massive hydrogen program called WENET which has been established to make them the leader in this technology. The Japanese support of WENET illustrates a long-term commitment in its desire to organize industrial and institutional teams. My second point is American industry also needs to see the same kind of long-term commitment plus industry and research teaming.

Programs in Florida and New Mexico do this. In the 104th Congress, the House Science Committee has already passed what is the Hydrogen Future Act of 1995, House bill H.R. 655. This is again an issue to move that technology forward.

Finally, the perception that renewable technologies are too expensive. The first question I have to ask is compared to what? Photovoltaics are more cost-effective than diesel generated electricity. They are less expensive than utility-line extensions, and I can give you many more reasons; but you may be told that renewables cost more than what you pay your utility company, but you are not the only market for renewables. The world is the market for renewables. Renewable technology application is in all sectors and all countries, and the important point is that renewable applications must be used where they are cost-effective.

Thank you.

Mr. MYERS. Thank you Dr. Block. Thank you, Dave.

Mr. WELDON. It is a pleasure to be here.

[The statement of Dr. Block follows:]

Testimony on
Renewable Energy: Jobs and Economic Development

by
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Submitted to:
U.S. House of Representatives
Subcommittee on Energy and Water Development
Committee on Appropriations

March 28, 1995

Summary

This testimony concerns the photovoltaics and hydrogen research and development programs of the Florida Solar Energy Center and the photovoltaics program of New Mexico State University. These renewable energy programs are directed towards economic development of new industries and related jobs through technology applications. The cooperative photovoltaics effort focuses on photovoltaic systems and components with the goal of providing U.S. manufacturers with better products that are more competitive in the U.S. and global marketplace. We are requesting that $2,000,000 from the photovoltaics program funds be made available to the Southeast and Southwest Regional Experiment Stations to continue these ongoing programs. In the hydrogen area, the program is a government-industry partnership to develop hydrogen as a transportation alternative. The request is for $600,000 to support the Florida Solar Energy Center's hydrogen research and utilization programs.

Statement

We want to begin by thanking Chairman Myers and the Subcommittee for this opportunity to present our views on the challenges facing the country -- and our states -- in terms of energy, jobs and economic development.

While this subcommittee is responsible, on the surface, for deciding what funds to appropriate for energy R&D, in our view, your decisions have much wider and more important impact. In the end, your deliberations decide how, where and how quickly energy technologies create new markets, create new industries and create new jobs.

Perhaps more than any other energy resource, renewable energy technologies offer the greatest potential for market, industry and job creation. These technologies provide energy services to all sectors of our economy, from residential to commercial to industrial to governmental.

And facts show that alternative energy industries are more labor intensive than the fossil fuel or nuclear fuel industries, creating 12 to 18 jobs per million dollars of direct expenditure compared with just 2 to 3 jobs per million for the traditional energy industries. When the indirect employment and sales benefits are accounted for, the dollar values more than double.

Beyond job creation, renewable energy technologies have the potential to create, fill and expand export markets for U.S. made goods, which further benefits our economy. Let us use photovoltaics as an example.

Photovoltaics Research at the RESs

As you know, photovoltaics are solid state electronic devices that convert sunlight to DC electricity with no moving parts, no pollution, no fuel requirements and very little operation and maintenance costs. In addition, photovoltaics is a modular technology, which allows the right amount power to be made available at the site where it is needed.

In other words, photovoltaics can provide the one essential ingredient for creating new consumers worldwide -- available electricity. Whether it's in remote villages of Mexico, the mountains of Argentina or the plains of Zimbabwe, this solar technology can provide electricity for pumping fresh water, refrigerating medical supplies and food, powering televisions and telephones, and lighting homes and schools. And photovoltaics can serve the new global consumer society without endangering the global environment.

Let us offer a telling anecdote to illustrate this point. Two months ago, the Florida Solar Energy Center hosted yet another of many annual "scouting" visits by a representative of a U.S. consumer goods manufacturer -- in this case, Whirlpool Corporation. Like all the others, he wanted to know what's new in the global photovoltaics market. We said, "But Whirlpool doesn't manufacture photovoltaics." His response: "That's true. We make appliances. And we sell them all over the world -- including places that don't have extensive utility grids."

Our global economic friends and competitors quite clearly see the potential of this growing market. In the past year, Europe has passed Japan as the second largest photovoltaics producer, with the U.S. first. If the large German firm that owns our country's largest PV manufacturer is counted as European instead of U.S., then the U.S. falls to third and the European output is double that of both the U.S. and Japan. On a percentage basis, last year the European market share increased by 31.1 percent compared to the U.S. increase of 14.7 percent. It is of interest to note that photovoltaics volume manufacturing increased by 15.5 percent last year, the largest increase in 5 years.

It appears that the Germans and Japanese are taking over a technology invented for the U.S. space program. German-owned Siemens Solar is now the biggest photovoltaics producer in the United States after buying Arco Solar in the early 1990s. Last summer a German consortium owned by utility giant RWE AG and Daimler-Benz bought control of Mobil Solar, and they are intent on targeting the large off-grid market for photovoltaics in Mexico and South America -- our customers.

Because of Congressional support in the past, material and manufacturing developments have lowered the cost of the technology to a point where it can soon be economically competitive with conventionally generated power in the U.S. In a utility configuration, today's cost of 15 to 25 cents per kilowatt hour can be reduced to the 6 cents by the turn of the century. Manufacturing costs are already at an all-time low, and each day brings news of increases in cell efficiencies. For example, the nation's largest natural gas company, Enron Corporation, is investing $150 million to build a new photovoltaic power plant, which, the company believes, can produce solar power at rates competitive with oil, gas or coal.

Coupled with an increasing demand for photovoltaics, these technical accomplishments bode well for the future of solar electricity.

These cost and efficiency advances demand that we be ready in this decade with the infrastructure that can put this technology into the coming global market. If we miss this chance, the giant sucking sound you will hear will be the sound of Germany, Japan and other industrial giants moving in to fill the consumer market we created with policy but weren't ready to serve with technology.

The Florida Solar Energy Center and New Mexico State University, in cooperation with Sandia National Laboratories and the U.S. DOE, have been incrementally building this infrastructure for the last 10 years at the Southeast and Southwest Regional Experiment Stations. The RESs, as we call them, focus on expanding markets and products for U.S. photovoltaics manufacturers.

At the Southeast and Southwest RES, our research concentrates on photovoltaic system applicationa and components, especially such problematic devices as charge controllers and batteries for solar energy storage. We help battery, controller and photovoltaic manufacturers improve the performance of their individual products in full system operation. These improvements make photovoltaic systems more reliable and cost-effective, which makes them more appealing to energy equipment purchasers in developing countries, as well as the U.S.

We also work on training and technology transfer, getting these systems into operation in a variety of government sponsored applications to demonstrate their cost-savings, reliability and wide range of applications. We also assist utility companies, state and federal agencies and the private sector in implementing cost-effective applications.

For example, with the Florida Department of Transportation, we have been responsible for installing 3000 systems totalling 86 kilowatts in remote areas to power everything from traffic signs to bridge and highway lighting systems. And all these applications not only support the photovoltaic industry's growth, with its attendant job creation, they are so cost effective that they save Florida taxpayers $9 million a year in governmental operating costs. In west Texas, we are working with Central and South West Services, Inc. in building one of the largest utility owned and operated solar/wind power plants in the country.

Our programs have opened up important export markets for U.S. products in Mexico and Latin America. Through workshops and training programs, technical assistance and project implementation we have helped the U.S. photovoltaic industry establish a presence in these rapidly growing markets.

Our activities in this area have initiated the interest of three photovoltaic companies in building manufacturing plants in Florida and the interest of one in New Mexico. Direct cost benefits of a typical plant are valued at $25 million in property and capital equipment; $50 million in annual production and sales, and $5 million in annual salaries. Do we want these facilities in Florida and New Mexico? You bet we do, because they mean high-wage jobs through clean manufacturing of environmentally benign technology to meet a potentially huge global market of new consumers. You bet we want photovoltaic manufacturers in our states, and you bet we want photovoltaic manufacturers in the United States.

We are convinced that one reason photovoltaics companies are showing an interest in our states is because of the work we have been doing at the RES. Our research focuses directly on industry's problems and helps them create solutions.

For Fiscal year 1995, the Energy and Water Appropriations Subcommittees of both houses stated that: "From within the available photovoltaic funds, an addition of $1,000,000 should be made available to support the ongoing research in photovoltaics being conducted by the Southeast and Southwest Regional Photovoltaic Experiment Stations." In order to support the expanded need for infrastructure development and the positive impact on the market, we request that Congress support the RESs at $2,000,000.

Hydrogen Research at Florida Solar Energy Center

Photovoltaics are just one proof of the fact that economic development is energy-dependent. While available electricity is the *sine qua non* of consumer-based economic development, available fuel is the necessary element for transportation-based economic development. It doesn't take a Ph.D. in History to see that the peaks and valleys of our economy closely track the rise and fall of the U.S. transportation industry.

In the old transportation equation, our factors were fuel, distribution and use. Twenty five years ago, we had to face a new factor: dwindling fuel supplies. Then came yet another new factor: foreign competition. Recently, we have had to add one more element: the environment.

Every time we add a new element, the equation becomes more difficult and its outcome has further-reaching effects on our economy.

Ten years ago, Florida Solar Energy Center took a long hard look at all these factors to try to substantiate, over the long-term, a predictable, systematic outcome for the transportation transition. In the end, it became clear that only a transportation mode fueled by indigenous, renewable energy can maintain the U.S. economy over the long term, and ultimately, that energy source must be hydrogen for use in either internal combustion engines or in fuel cells for electric vehicles.

Based on the results of this analysis, the Florida Solar Energy Center began hydrogen research in 1985 in partnership with the Universities of Hawaii, Miami and Texas A&M under the U.S. Department of Energy's National Renewable Hydrogen Research Program. In 1992, DOE brought the national labs into the research effort and directed my institute to conduct research on advanced hydrides for hydrogen energy storage. This research has developed new, improved hydrides with potential for significantly improved kinetics and lower costs.

To ensure that Florida would not be left out of the hydrogen transportation effort, we broadened our hydrogen research in 1992 to include development of hydrogen as an automotive fuel and new methods for producing hydrogen from renewable resources.

This research has resulted in development and demonstration of HY-TEST, a 35/65 mixture of hydrogen and natural gas that significantly reduces airborne emissions without the need for a catalytic converter. HY-TEST vehicles have been shown to produce fewer emissions than electric powered vehicles if the electric power plant emissions are considered in the calculation. We have also developed promising new methods of producing hydrogen through thermocatalytic and photocatalytic breakdown of methane and water.

We have attracted industrial partners to this research -- partners who see the economic development potential of hydrogen fuel. These partners include Ford Research, Florida's natural gas industry and Praxair Corp, a leader in the nation's gaseous chemicals industry. And we are gaining federal partners, as well, including our Florida neighbor, NASA/Kennedy Space Center, the world's largest user of hydrogen energy.

Further, our work in Florida prompted the global hydrogen community to chose Florida Solar Energy Center to host the 10th World Hydrogen Energy Industry in Cocoa Beach in June of last year. Co-sponsored by NASA, the conference was attended by 650 hydrogen researchers from 38 countries, which demonstrates the size and fervor of international hydrogen development efforts.

Are we facing global competition in the transition to the hydrogen economy? Of course. Both Germany and Japan already have larger hydrogen R&D programs than does the U.S. In Japan's case, the national government is in the second year of a project called WE-NET for World Energy Network. This project aims at establishing Japan's leadership in technologies to support a future hydrogen energy system and is well-financed at $3 billion over a scheduled 28 year period. The WE-NET project has already signed contracts with 28 Japanese corporations, research institutes and industrial organizations. Japan's support of WE-NET shows its commitment to hydrogen and also illustrates the government's desire to organize long-term support for research and industry teams. This long-term commitment and teaming present a model that the U.S. must follow for long-term development of hydrogen.

In Germany, Daimler Benz and BMW are producing and testing hydrogen powered cars. In addition, the world's largest industrial-scale test facility producing hydrogen from solar power is now in its eighth year of operation in Munich. This facility has now added fuel cells and a liquid hydrogen refueling station. Total outlays for this facility are now at $87 million at current exchange rates. Here in the U.S., the Department of Energy is funding hydrogen research at only $10 million in Fiscal Year 1995, with a lower request submitted for next year's budget.

In the 104th Congress, Congressman Robert Walker and the House Science Committee recognize the need for better funded, more competitive hydrogen R&D, as shown by their support of a bill titled the Hydrogen Future Act of 1995. This bill will authorize hydrogen funding at $25, $35 and $40 million for the next three fiscal years. The House Science Committee already knows that only hydrogen-powered vehicles can meet our long-term transportation and energy needs.

While I strongly support this bill, I must remind this subcommittee that the hydrogen fuel of the future must be produced from renewable resources rather than carbon-based fuels; it is the only way to ensure that the energy equation does not create as many problems as it solves.

This premise is the cornerstone of Florida's hydrogen research and the basis for the following statement of the House Energy and Water Appropriations Subcommittee in its Fiscal Year 1995 bill: "From available funds, the Committee has included $600,000 to support the ongoing and productive research at the Florida Solar Energy Center."

In summary, renewable energy is energy for the long run. Federal funding for the nation's photovoltaics and hydrogen R&D programs are essential for U.S. economic development. Renewable energy will supply a sustainable, competitive and secure base for our nation's future, no matter what new factors enter the equation. And the Subcommittee on Energy and Water Development holds the key to this future.

We thank you for your attention and will be happy to respond to any questions.

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TUESDAY, MARCH 28, 1995.

RENEWABLE ENERGY PROGRAMS

WITNESS

NANCY BACON, SENIOR VICE PRESIDENT, ENERGY CONVERSION DEVICES, INC., CHAIRPERSON, R&D TASK FORCE, THE BUSINESS COUNCIL FOR A SUSTAINABLE ENERGY FUTURE

Mr. MYERS. Nancy Bacon, The Business Council for a Sustainable Energy Future. Your prepared statement will be placed in the record and you may proceed for five minutes.

Ms. BACON. Thank you Mr. Chairman. It is a pleasure to be here today. I am Nancy Bacon, Senior Vice President of Energy Conversion Devices and also a member of the Business Council for Sustainable Energy. There I head the task force for research and development particularly of this area.

Due to the shortness of time, I would like to submit the formal testimony and make a few short remarks with regard to the particular areas that I am interested in.

The Business Council is comprised of leaders that all have a commitment to pursuing clean energy. Different than a lot of environmental groups, if you will, they all believe that what we need to do is have energy, environment, and economics altogether.

We need all three of these ingredients that we need to address and we believe that we have renewable energy technologies with additional development that can be cost-effective. And I am not talking about cost-effective just for remote locations. Our goal is to bring the cost down to be competitive with conventional fuels.

The market for electric generating capacity, as we know, is enormous. Over the next 30 years, we will be talking about $30 trillion of new investments. Renewal energy is ideal to be able to meet a large portion of those needs. We believe the DOE can play a critical role in positioning U.S. industry to dominate this field and create hundreds of thousands of high quality jobs. Significant progress has already been made in improving the product performance, but much needs to be done to be cost-effective as a real energy option. My written testimony reviews some of the DOE programs of particular importance, particularly with regard to wind, geothermal, and solar.

I would like to share some of my company's experiences with the DOE that might be able to give you some light on past investments as well as what we hope to see, substantial future investments in these technologies. We are a small materials company in Michigan and in the energy area, we are working in photovoltaics as well as nontoxic rechargeable batteries.

We have had a long and rewarding relationship with the DOE and all the programs have been cost shared, which I personally like as a taxpayer, and am in full support of as an industry representative. I think PV has worked well in space for 30 years. There is no problem with regard to its work performance. Most of the mainstay is crystalline.

You can only grow a crystal this big, it has to be sliced, there is a lot of wastage involved, it is heavy, fragile and expensive. I think that DOE had recognized long ago that we needed to put programs in place to address the key factors that are necessary for economic photovoltaics. That is low materials cost, it is high conversion of stabilized efficiency, and it is cost-effective manufacturing and high yields.

I think we have been very pleased to work with the DOE and particularly our firm is working in amorphous photovoltaics. This is a way that we are able to use the thin film so we use 50 to 100 times less the materials cost. Because of that, you obviously have better absorption in the solar cells, but what has been hindering us in the past is the low conversion efficiencies. While the crystalline counterparts are in the 12 to 13 percent range, typically the amorphous has been in the 4, 5 percent range, sometimes 6 percent range.

Last year, with a DOE-supported program, we were pleased to have a 10.2 percent world record efficiency for a module that was hailed by not only DOE, but by the world as a breakthrough. This is stabilized efficiency and we deem it to be very important. To understand this, if you had a 5 percent cell versus the 10 percent cell, it is basically reducing the cost in half.

The other key ingredients are production and yield. Here with a PV-MaT program we have developed advanced manufacturing technology where we are taking half-long rolls of stainless steel, one-foot wide and are producing photovoltaic devices. This has already led to near-term successes and what we are looking to in the long term is to bring costs down. We have sold $10 million in manufacturing equipment to a Russian joint venture.

In addition to that, we have recently gotten a new contract from our U.S. subsidiary, United Solar Systems for a $7.6 million contract. Here again, we are creating U.S. jobs, high quality jobs right here in our State.

Another area that is of particular importance that we are working on is PV Bonus. Here, what we are doing and I am going to cut short, we are incorporating these into roofing structures.

Finally, I would like to say that I would like to support the international efforts of the DOE. We believe very strongly that it is imperative that we look at these global markets. We would like to ask the committee to really support the DOE's budget, particularly in photovoltaics and particularly in R&D.

We applaud all the work that is being done to cut expenses but don't want to eat away at the seed corn. The science and technology is critical in positioning ourselves in the world economy. Thank you for your support and we would like you to continue to support these budgets.

Mr. MYERS. Thank you.

[The statement of Ms. Bacon follows:]

THE BUSINESS COUNCIL FOR A SUSTAINABLE ENERGY FUTURE

TESTIMONY:
HOUSE APPROPRIATIONS COMMITTEE, ENERGY AND WATER SUBCOMMITTEE

CONCERNING:
FY 1996 BUDGET APPROPRIATIONS FOR RENEWABLE ENERGY PROGRAMS

MARCH 28, 1995

INTRODUCTION

The Business Council is pleased to offer testimony to the Energy and Water Subcommittee of the House Appropriations Committee on the proper role for government in promoting energy research and development, as it relates to renewable energy programs at the Department of Energy (DOE).

The Business Council, formed in December 1992, is comprised of business leaders who share a commitment to pursue a new energy strategy designed to realize the Nation's economic and national security goals through the rapid deployment of efficient, non- and low-polluting energy technologies. Business Council members include manufacturers, energy producers, suppliers, and energy service companies. The diversity of our membership is further reflected in the companies' size, ranging from Fortune 500 enterprises to small entrepreneurial businesses.

FEDERAL PROGRAMS TO PROMOTE RENEWABLE ENERGY RESOURCES

The Business Council recognizes that it is the suppliers and users of energy -- not the federal government -- that ultimately will decide which energy sources will meet our future energy needs. However, the federal government does play an important role in helping the private sector overcome market barriers to the deployment of clean technologies that, while economically viable, face financial, informational, or institutional obstacles to their wide market availability.

A quick glance at the demand-side of the energy equation demonstrates the potential market for these technologies. The United States is expected to spend as much as $200 billion on new electric generation capacity in this decade to replace aging power plants and to keep up with rising demand for electricity. US investments pale when compared to those made worldwide. During the 1990s alone, countries throughout the world are expected to spend approximately $1 trillion to improve their energy infrastructure.

Typically, these energy investments could be expected to flow to the least cost option, based on prevailing market conditions. While traditional energy technologies are seemingly lowest cost, they may have hidden social and environmental costs -- in the form of pollution, risks to public health, resource depletion, and insecure supply -- that, in the long run, could cause these technologies not to be the lowest cost option. Since the future is anything but certain, the federal government has had a long-standing policy of supporting renewable energy research, develop and demonstration programs.

The technologies being developed by the US renewable energy industry are rapidly emerging as competitive options for electric power production both in grid and stand-alone applications. For example, the cost of electricity from wind has fallen from over 30 cents/kWh in 1980 to 4 to 6 cents/kWh today at locations with favorable wind regimes, making it competitive with traditional resources. The photovoltaic industry has also achieved healthy increases in sales both domestically and internationally.

Notwithstanding the significant progress renewable industries have made in reducing costs and increasing technology reliability, barriers still remain that slow their commercialization. DOE is engaged in a number of programs to help eliminate or mitigate the impacts of these barriers. I would like to briefly review a few of these programs that the Business Council believes are particularly effective.

WIND

DOE supports several initiatives designed to improve both technological efficiency and utility acceptance of wind power plants. Programs such as the Next-Generation Wind Turbine and the Value-engineered Turbine are cost-shared efforts in which DOE works closely with the wind industry. These programs have already produced market-ready products.

The Turbine Verification program is jointly funded by DOE and the Electric Power Research Institute (EPRI). The Turbine Verification program helps bridge the gap between turbine development programs and commercial purchases of wind turbines. Ultimately, this effort will help ensure that a mature domestic manufacturing infrastructure for wind turbines takes hold in the US to compete internationally. With very limited funds, DOE and EPRI have leveraged significant private-sector capital to stimulate the commercialization of wind turbines. In 1993, DOE was able to fund two wind projects totaling $22 million with a federal investment of less than $3 million.

Wind programs have been a success story for DOE's overall R&D program. Although wind is making headway in the electric power generation market, present installed wind capacity represents only 0.1 percent of total US generating capacity. Clearly there are opportunities for growth as wind power costs continue to fall.

More and more electric utilities are becoming interested in generating power from large-scale wind power plants. Last year, international demand for wind technologies exceeded $600 million, the largest ever. This market is expected to further grow over the next few years. Maintaining a US presence in this growing industry is a valuable investment of federal resources -- one that will pay off many times in the next several decades.

GEOTHERMAL

DOE also supports cost-shared programs to promote increased use of geothermal energy. The Business Council believes that DOE support for geothermal commercialization activities is warranted to: (1) bring on-line power generation from geothermal resources which have been discovered but not yet developed; (2) establish new resources to provide additional inventory; (3) assist existing operations increase their output; and (4) utilize the energy efficiency associated with geothermal heat pumps and other direct use technologies. Through its portfolio of geothermal programs, DOE will help the private sector expand its domestic generating capacity to 4,000 MW by the year 2000, while capturing 1,000 MW annually in export sales. We believe that with these kinds of returns maintaining DOE's cost-shared geothermal programs is good public policy.

Historically, DOE's geothermal programs have had an excellent record in leveraging federal funds with private investment. For every $1 in federal assistance to geothermal R&D, the geothermal industry has contributed $5 in private investment. In our view, DOE can make important contributions to the continued growth of the US geothermal in two main areas. First, DOE collaborative exploratory drilling programs with industry provide the necessary leadership and focus as well as help spread the risk associated with the costly "wildcat" drilling required to confirm the existence and location of viable geothermal resources. Second, DOE, working with industry, can help demonstrate the viability of geothermal energy at locations previously not developed. We believe that these efforts will require relatively modest federal participation (on the order of 30 to 40 percent). Assuming that sites chosen under the programs have expansion potential, industry participants in the project could develop additional geothermal power in subsequent years independent of federal participation.

SOLAR ENERGY

DOE's cost-shared solar energy programs have been highly successful in achieving dramatic reductions in the cost of solar technologies while greatly improving their reliability. A notable recent demonstration of DOE's success is the announcement by Business Council member United Solar Systems Corp./Energy Conversion Devices of a major breakthrough that halved the cost of producing thin-film amorphous silicon PV-panels.

Faster integration of solar energy systems in both supply- and demand-side applications in our domestic economy -- combined with support for increased exports of US solar technologies to take advantage of emerging multi-billion dollar markets -- will have the parallel benefits of creating thousands of new high-technology manufacturing jobs and improving our environment. Solar technologies available today include photovoltaics (PV), solar water and pool heating, solar process heat, and solar thermal power technologies. The Business Council supports the trend toward market-driven, industry cost-shared programs designed to leverage federal dollars with private-sector participation to enhance private-sector understanding and use of these technologies.

Improving conversion efficiency of solar panels and reducing manufacturing costs will play a key role in sustaining US dominance in the area of PV. The Business Council supports DOE cost-shared initiatives in R&D (thin-films and other advanced materials) and manufacturing (PV-MaT) which address these issues. Equally important is the concept of building integrated PV programs (PV:BONUS) where PV manufacturers, system integrators, and utilities are working together to reduce the cost of PV-generated electricity. Another good model for public-private efforts is the "PV-COMPACT" program, a collaborative effort involving more than 80 electric utilities (representing over half the electricity production in the US) and other interested organizations to garner the economic, commercial and environmental benefits of PV technologies.

PVs and other solar technologies offer the US environmentally benign and cost-effective energy supply options in a variety of market applications. The market viability of these technologies is demonstrated in growing private sector interest in developing new manufacturing facilities related to solar industries. In the area of PV production alone, the last two years have witnessed six US companies -- including Business Council members United Solar Systems Corporation and Enron Corp. -- announce plans to construct new photovoltaic plants. This activity is a unique example of DOE funding encouraging significant private-sector investment that creates new jobs. The Business Council strongly urges Congress to continue its support of public/private partnerships that help ensure that US companies can compete effectively in rapidly emerging world renewable energy markets.

INTERNATIONAL ACTIVITIES

Finally, the Business Council would like to offer its support of federal programs designed to help open important international markets for renewable technologies, including DOE programs such as the Committee on Renewable Energy, Commerce and Trade (CORECT) and GT-World.

The developing world -- Eastern and Central Europe, the former Soviet Union, Asia, Africa, and Latin American -- presents tremendous opportunities for the deployment of renewable energy technologies. Renewables offer great flexibility to developing countries looking for economically viable, reliable, and clean energy supply options that can be used to serve growing metropolitan areas and remote rural regions where power is otherwise unavailable. Renewables can also help support the development of commercial activities such as agriculture and telecommunications through remote power source applications. Competition in rapidly growing developing country markets is intense; US renewables manufacturers face the dual obstacles of competition from conventional energy sources and foreign renewables manufacturers buoyed by government assistance.

In this regard, it is important to note that major US competitors are now making aggressive moves into the renewables market. When measured against the relative size of their economies, Japan, Germany, and Sweden are each now making larger government R&D investments in renewables that the US. In fact, the US taxpayer spends a lower portion of its R&D budget on energy than any other taxpayer in an industrialized, market-based economy.

US government assistance in identifying market opportunities, providing education and training for energy decision-makers in the developing world, and supporting demonstrations of renewable technologies in overseas applications promises to help ensure that US renewables manufacturers will be successful in capturing market-share throughout the expanding global market for clean energy technologies and services.

CONCLUSION

Promoting research, development and demonstration of emerging renewable energy technologies will result in the near-term creation of thousands of new jobs, a stronger economy, enhanced export opportunities for domestic manufacturers, and a cleaner environment. DOE's budget request continues federal emphasis on developing low- and non-polluting energy technologies and services as a means of achieving these goals. It utilizes cost-shared collaboratives with industry to leverage limited federal funds in recognition that cooperation with industry is vital for addressing market imperfections impeding the widespread use of renewables. The Business Council strongly supports this approach, and urges Congress to continue its support of federal research, development and demonstration programs for renewable energy technologies.

TUESDAY, MARCH 28, 1995.

DEPARTMENT OF ENERGY RESEARCH AND DEVELOPMENT AND SOLAR PROGRAMS

WITNESS

SCOTT SKLAR, EXECUTIVE DIRECTOR, SOLAR ENERGY INDUSTRIES ASSOCIATION

Mr. MYERS. Mr. Scott Sklar, Executive Director of the Solar Energy Industries Association. Your prepared statement will be placed in the record and you may proceed for five minutes.

Mr. SKLAR. I appreciate that very much. The Solar Energy Industries Association was founded in 1974, a year after the first oil embargo; and we have 550 companies, 150 national manufacturers of component suppliers, and 400 affiliates in our companies in our State and regional chapters. We are mostly small business. We have some bigger companies as part of our membership, too.

I am here to give you a message in the testimony. This subcommittee has been very good to us in working with our industry, but I want to lay out to you that our programs that are what I consider the modern context came out of a negotiation with the Bush administration where we made a deal, and the deal was pretty simple: No more just demos and R&D that doesn't get to the marketplace, that there would have to be cost share. So during the Bush administration, our industry created on a consensus basis a series of cost shares to bring the technology faster to the marketplace. Without the cost shares, we would still be in the marketplace, just not as advanced.

Some highlights of this. In solar thermal, we had solar dish engines, Cummings, Westinghouse, Detroit Diesel, to get solar driven engines to provide electricity to the 1 billion people who do not have electricity worldwide. The program has been cost shared three to one. We have been on time and on budget.

Last year we got four validation experiments going on. We were just running them to make sure that both the utility industry and the end users would know that these would work, and they are working fine. Cummings plans to build a pilot facility so that we are driving this technology into the marketplace, period.

In photovoltaics, we have the photovoltaic manufacturing initiative.

Mr. FAZIO. Where is Cummings located?

Mr. SKLAR. In the great State of Indiana. In the photovoltaics side of the shop, the industry said, if you are going to make this technology, semiconductor technology commonplace, you have to get a common scale manufacturer.

So how do we automate our manufacturing facilities and get over certain technological hurdles? We have a 50/50 cost share program on that, but at the same time, you need market aggregation, end users who are willing. We have a PV Compact program, 91 utilities in the United States, five-year cost share of $368 million with a $120 million cost shared over five years with DOE to drive the technology in the U.S. marketplace.

Why? Twofold. You can't control the global markets without a growing domestic market; and B, with new technologies, the utility sector would say the regulators and the consumer advocates need to be sure that the costs are going to go down not now, but over the next few years. So we developed a program with the regulators at the State level, the consumer advocates at the State level, the utility industry and our own industry so that when we scale up manufacturing, we can access the technology, drive it in their markets and build the experience level that will make it commonplace. It is a good program.

Solar water heating, the same issue. We are doing a consortium Solar H_2O with water heating and trying to push it into the Federal energy management program. The U.S. Government is the biggest owner of buildings and the biggest user of energy in the world, and into some of the weather industrialization programs.

By the way, you say we never ask to cut anything. We are saying we only want half the budget recommendation 1996 for the international program. We want the cost-shared programs for CORRECT, for Lackmer in Asia; and some of the joint implementation programs we can cut back on because they are not as well-defined as we would like.

The bottom line is we have done good, we have been on time, on budget, we have the highest-leveraged cost share of a lot of the other programs you are funding. I know you have budget problems. I am cognizant of those problems. We will work with you on it, but we do not want to be picked on, we don't want arbitrary cuts that will hurt what our investors have done to make these technologies commonplace.

I want to thank both of you, particularly Congressman Myers and Fazio, for working with our industry; but I think we have made good on these programs and I hope that you will stick with us.

[The statement of Mr. Sklar follows:]

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TESTIMONY

by

Scott Sklar
Executive Director

SOLAR ENERGY INDUSTRIES ASSOCIATION

before the

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

on

FISCAL YEAR 1996 APPROPRIATIONS
for
SOLAR ENERGY (AND RELATED) PROGRAMS

of the
U.S. DEPARTMENT OF ENERGY

March 28, 1993
WASHINGTON, D.C.

SOLAR ENERGY:

A WISE INVESTMENT IN OUR NATION'S ECONOMIC SECURITY

Introduction

The Solar Energy Industries Association (SEIA) is the national trade organization of the photovoltaics and solar thermal manufacturers and component suppliers, composed of 540 companies and market organizations, 400 of which are members of SEIA's 13 state and regional chapters. It is virtually impossible to stereotype today's U.S. solar energy industries, which are comprised of manufacturers, component suppliers, distributors, and installers involved in the development and deployment of a wide variety of solar energy systems, both electric and thermal. Solar energy companies include hundreds of small entrepreneurial businesses across the nation as well as a few Fortune 500 corporate giants.

Where are the solar industries today? Succinctly, we are nearing the threshold of market acceptance domestically and on the brink of a virtual explosion in international market penetration. Of note:

* At least five automated photovoltaics manufacturing facilities are planned for construction in the United States over the next few years. Over 65 % of US-manufactured PV technology is exported, mostly to developing countries.

* A solar parabolic trough steam-to-electric facility now provides 385 megawatts of electricity in Southern California and another 1000 Megawatts of solar thermal power is planned for deployment over the next several years in Nevada's "Solar Enterprise Zone."

* Solar water heating systems are installed on 1.2 million buildings, and solar pool heating systems are used for heating 100,000 pools, displacing the equivalent of energy of two nuclear power plants worth per day.

Much of our success today can be attributed directly to federal assistance, through the U.S. Department of Energy and its laboratories, most notably, the National Renewable Energy Laboratory and Sandia National Laboratories.

Federal Spending for Solar Energy: A Wise Investment that Pays Off

Our nation's economic strength can be attributed indisputably to our ability to develop, market, and sell emerging, innovative technologies, often with the assistance of a U.S. government investment in civilian R&D activities. The government's past decisions to invest in a wide range of new technologies has been based, in large part, on the proven recognition that our economy, as it is currently structured, favors private investments that pay off only in the relative short-term, at the expense of investments in research and development that take longer to yield a return on investment. It is also based on the recognition that private enterprise does not and cannot always look out for a nation's economic and energy security. A vast amount of thoughtful discourse and hard experience has led to the conclusion that neither U.S. industry nor the government alone can bear the entire risk and burden of market-relevant technology development.

The notion that there is a legitimate and worthwhile federal role in helping to incubate emerging technology companies, to bridge the gap between research and market acceptance, is not new, and should not casually be discarded without serious consideration of the negative consequences to our nation's economic security, especially in the context of our nation's ability to compete effectively and successfully in the potentially multi-billion dollar international markets.

SEIA welcomes an earnest and lively debate on the merits of federal spending. We have a highly positive story to tell. While the solar energy industries might have evolved in some form on their own, the federal investment has accelerated the transition from the laboratory bench to commercial markets in a way that has already accrued valuable economic benefits to the nation. The solar energy industries have already created thousands of jobs and helped to reduce our trade deficit through exports of solar energy systems overseas, mostly to developing nations, where two billion people are still without access to electricity.

International market for solar energy systems are virtually exploding, due to several key market trends. Most notably, solar energy is already one of the lowest cost options available to developing countries that cannot afford to build large, expensive centralized power generation facilities with elaborate distribution systems. Solar energy systems allow developing nations to use indigenous resources, obviating the need to import energy and lose precious foreign exchange. Solar energy provides the additional advantages of supply diversification and long-term sustainability. Solar energy systems are deployed quickly (within days), are easy to maintain, and easy to expand when additional power is needed. Solar energy does not pollute the environment with toxics or contribute to global climate change, a characteristic that is less politically salient in this country right now but is nevertheless important and valued highly by nations all over the world.

The governments of Japan, Germany, and Australia are investing heavily in aggressive technology and market development in partnership with their own solar energy industries. Until recently, Japan and Germany held the lead in world market share for photovoltaics; the United States has only recently recaptured international market dominance, with tenuous future prospects of holding the lead. Adding to the pressure U.S. solar companies face is the witnessing of the competition coming ashore. *Over this past year, two U.S. solar energy companies – a division of Mobil Oil Company and Solec International – have recently been bought out by German and Japanese companies, respectively.* The entire solar industry is beginning to find itself working aggressively to fend off additional foreign corporate take-overs.

The U.S. DOE's Solar R&D Programs are Making Important Contributions to the Nation

The solar energy industries have for several years recognized the very real and important need to reduce federal spending and to reward the nation for its investment. We have responded by helping to create several highly cost-effective, joint federal-private, cost-shared partnership programs that rely heavily on competitive solicitation, mechanisms to help ensure market-relevance of research activities, and a high degree of private sector leveraging. *Every key U.S. Department of Energy Solar Energy Program represents a carefully negotiated public-private partnership, and each is heavily cost-shared, from 50-50 and upwards, by the solar energy industries, electric utilities, and state and local governments (see charts in Attachment A).* These are partnerships that are working and are achieving successes that will result in a return on investment through job creation, increased corporate income tax payments, and maintaining our domination of burgeoning international markets.

Let me illustrate by providing examples.

* PV-MaT, a government-industry manufacturing partnership for photovoltaics, has in its first three years already resulted in a quadrupling of the manufacturing capacity of participating PV manufacturers (selected competitively) and an average cost reduction of 50% in direct manufacturing

costs associated with PV modules. PV manufacturers candidly credit the program for their ability to compete effectively in world markets and, in some cases, to ward off company take-overs by foreign businesses.

* The solar Dish/Engine Joint Venture Program has been successful in developing for market entry a small-scale, solar-natural gas hybrid electric generator that uses a parabolic mirror to focus sunlight on an external combustion engine called the Stirling engine, using natural gas when sunlight is unavailable. The ratio of industry to government investment in this technology since it was begun is nearly 3-to-1, and has resulted in the development of a 7.5-kilowatt Dish/Stirling generator for remote applications such as village power and water pumping in international markets. Cummins Power Generation of Indiana plans to finish a manufacturing prototype ready for mass production by the end of 1996 and to begin manufacturing a warranted product by 1997. Cummins expects to be selling 20,000 units by 2003, creating 4,300 jobs annually.

* PV-COMPACT: Two years ago a unique collaborative was formed -- comprised of the solar industry, state consumer advocates, state utility regulators and electric utilities -- based on the belief that photovoltaics has a rightful place in our energy future and that for any industry to maintain global dominance, it must have a growing domestic market. So far, 91 electric utilities have joined the Utility Photovoltaic Group, pledging up to $368 million in a 3-to-1, five-year cost-share with the federal government to integrate PV into the utility sector, creating the next generation of U.S.-based PV manufacturing. The federal contribution (approximately $7 million in FY1995) buys down the regulatory risk needed by utilities to receive approval to integrate new technology on the electric grid.

* USH$_2$O is a collaborative of the utility and solar energy industries designed to more fully integrate solar water heating into utility programs. It has already resulted in elevated interest in solar water heating programs among several public and private utilities, which will lead to aggregating markets and automating existing manufacturing plants.

SEIA's FY 1996 Appropriations Recommendations

SEIA's FY 1996 budget recommendations for the U.S. DOE's solar energy programs, outlined in detail in Attachment B, were crafted by the solar industry in consultation with national laboratory, state government, and utility leaders. SEIA carefully crafted these recommendations to reflect the most cost-effective leveraging of federal dollars to bridge the gap between research and commercial viability.

The following table summarizes our basic recommendations:

SEIA'S FY 1996 SOLAR ENERGY R&D APPROPRIATIONS RECOMMENDATIONS ($ Millions)	
Core Technology Programs	
Photovoltaics	94.00
Solar Buildings	6.25
Solar Thermal (Electric & Industrial)	38.00
Other Programs	
Solar International	14.50
Renewable Energy Production Incentive	3.00
Resource Assessment	5.00
Energy Storage	7.92
Hydrogen (through renewable energy resources)	10.00
P.L. 101-218/EPACT Commercialization Ventures	15.00

Conclusion

We have the option of pulling the rug out from under these carefully crafted public-private partnership programs, forever forfeiting the opportunity to realize the payback of our investment through increased corporate income tax payments, increased domestic employment, and increased exports. Or, we can apply ourselves even more aggressively to the task of enhancing the effectiveness of these partnerships, to ensure that our nation reaps its well-deserved economic rewards.

I want to leave you with one last thought, told in a story. Three highly innovative, entrepreneurial small businesses approached the government for help and were served through the Small Business Administration. As a result, they grew and prospered to become market giants. Today, the combined corporate income tax payments of these three companies -- Intel, Apple, and Federal Express -- exceed the entire budget of the Small Business Administration. There is no reason to believe that a handful of solar energy companies will not also reach such profitability. We urge the Subcommittee to act in a way that will allow history to repeat itself.

Thank you.

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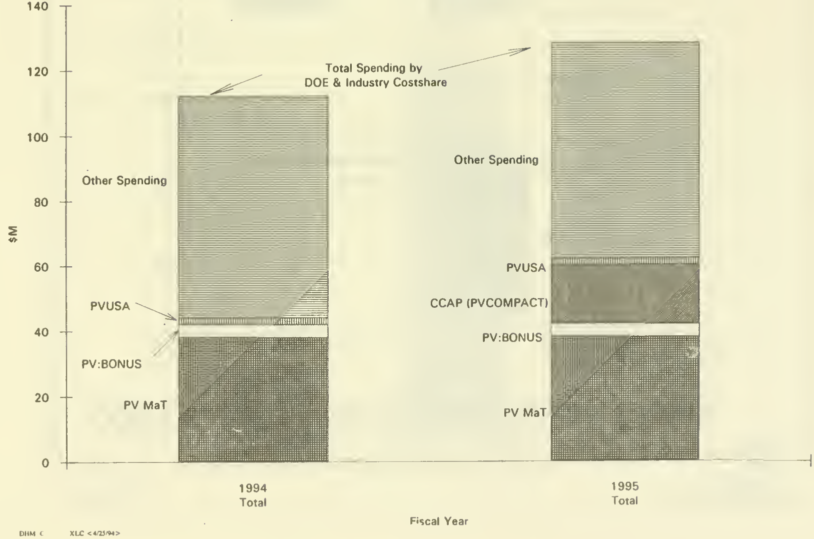
Attachment A.1

Cost Share Dollars in the PV Program

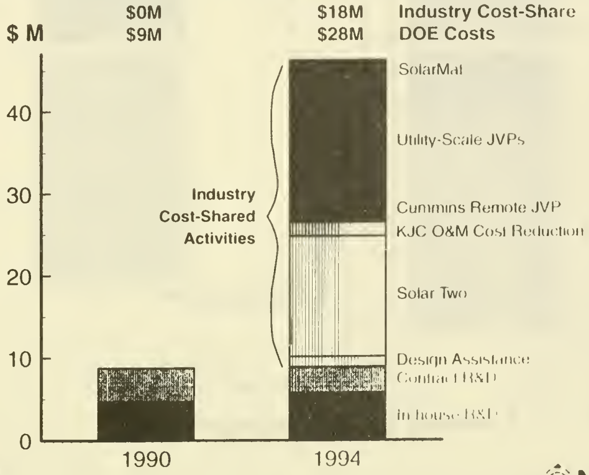
(FY94 - FY95, current $)



Attachment A.2

Solar Thermal Programs

DOE's Solar Thermal Electric Program Growth



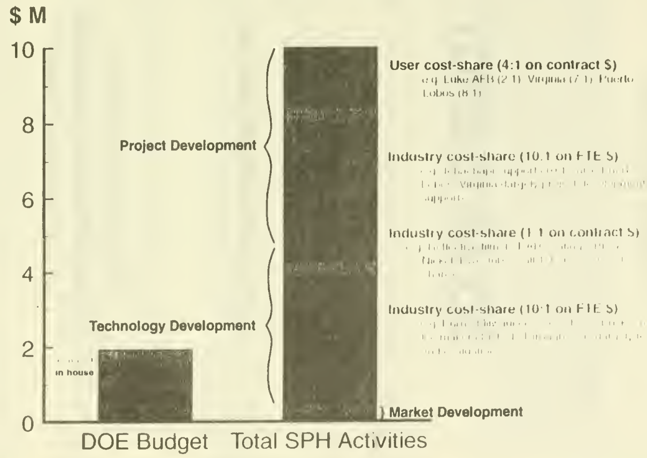
Sandia National Laboratories

NREL

Attachment A.3

Solar Thermal Programs

DOE's Solar Process Heat Program Leveraging



Sandia National Laboratories

NREL

Attachment B

SOLAR ENERGY

AN INVESTMENT IN OUR
NATION'S ECONOMIC SECURITY

THE SOLAR ENERGY INDUSTRIES'
FY 1996 APPROPRIATIONS RECOMMENDATIONS
for the U.S. DEPARTMENT OF ENERGY

THE SOLAR INDUSTRIES' FY 1996 APPROPRIATIONS RECOMMENDATIONS for the U.S. DEPARTMENT OF ENERGY

Photovoltaic Systems

The increased worldwide acceptance and deployment of photovoltaics (PV) has stimulated a worldwide interest in the business prospects of the industry, the usefulness of PV in solving many challenging global energy and social needs, and has led to recent actions to expand and construct manufacturing facilities. A model for such support is PV-COMPACT – a collaborative that has brought together electric utilities, utility regulators, the solar industries, state government officials, and consumer advocates working in concert to bring about a realistic utilization of PV technology – and its role in the rapidly-changing electric utility business and how that role may accelerate the commercialization of PV. DOE's "seed money" has been a catalyst in legitimizing the process and committing these key players. PV-COMPACT is meeting its objectives of overcoming barriers to PV use by utilities.

> *The industry owes its ability to keep pace with global competitors, in part, to the accelerating effects of federal support for these high-risk technologies.*

In 1994 a central member of PV-COMPACT, the Utility Photovoltaic Group, made up of 90 electric utilities, representing 45 percent of our nation's electricity production, initiated the first of several phases of its procurement plan that is expected to deploy up to 50 megawatts of PV by utilities with the utility industry putting up 70% of the cost.

These initiatives exemplify the true value of the government-industry partnerships to legitimize the technologies, build investor confidence in the industry, and sharpen our competitive edge. The benefits of PV-COMPACT are expected to be global in nature building confidence in international electric utility industries, energy policy-makers, and multilateral lending institutions.

Another successful program in midstream is the government-industry cost-shared PV Manufacturing Technology (PV-MaT) partnership. PV-MaT has accelerated the development of numerous manufacturing processes for the production of PV solar cells and modules. Building on its success, PV-MaT entered a new stage in 1994 with a program phase pushing the design and development of PV systems and products that meet global market needs.

The U.S. PV industry is expanding its manufacturing capacity and its labor force, and is being targeted by U.S. corporate and international investors. In 1994, the U.S. PV industry increased its production by approximately 20%. 1994 is the first year that the industry has not suffered from excess capacity. Three U.S. PV manufacturers were recently purchased in total, or in part, by major foreign corporations: Solec International (CA) by Sanyo/Sumitomo (Japan), Mobil Solar (MA) by the German consortium Angewandte Solarenergie, and ECD/Sovonics' new manufacturing facility in Virginia by Canon. Two other major foreign competitors also plan to announce U.S. manufacturing facilities this year. Amoco and Enron, two of America's corporate giants, formed Amoco/Enron Solar which will continue to build on the Solarex foundation.

The world PV markets are growing at about 20% per year with approximately 70% of the U.S. PV production being exported. Multilateral financial institutions, spearheaded by the World Bank, have, through worldwide experience, gained new confidence in PV technology and have earmarked some of its energy loans for PV. However, the U.S. is facing increased competition from overseas PV manufacturers (many of whom operate with generous government subsidies). It is imperative the U.S. continue to support international market development activities through innovative bundling mechanisms such as "FINESSE" in order to secure its fair global market share.

SEIA's FY 1996 Budget Recommendations
($ millions)

Photovoltaic Systems

FY '94 Actual	FY '95 Actual	FY '96 Admin. Request	FY '96 SEIA Recommendation	Program Descriptions
74.8	91.0	88.1	**94.0**	**TOTAL Photovoltaic Systems Program**
30.9	30.5	32.5	35.0	**Strategic Research:** Both Fundamental Research and Advanced Materials & Devices Research should be structured and focused on maintaining a pipeline of advanced technology for future commercial products, and 50% should be contracted with outside universities and industry labs. Funding from each of these programs should be earmarked for additional thin-film research and development as the technology has reached a critical stage in its commercialization process. Universities and larger members of the PV industry should be expected to cost-share a portion of the strategic research funding at those levels necessary to continue to expand the breadth of PV products that are commercially available.
7.9	7.5	7.7	8.0	As industry transfers technological advancements from labs to production, it is critical that **Fundamental Research** on PV device fabrication be sustained. University and private industry research efforts remain the lifeblood of technology development initiatives and also should be preserved by continued funding. At least 50% of the funding for fundamental research should be tested against market and product-oriented criteria to allow for accelerated product development. As the global market for commercial PV products becomes increasingly competitive, new frontiers in technology development must be reached and industry must sustain its current rate of product development. Critical program elements include support of industry through measurements and characterization; environment, safety, and health: and university centers of excellence.
23.0	23.0	24.8	27.0	Through the study of **Advanced Materials & Devices**, the PV industry and laboratories continue to set new world records in nearly every PV technology area. To ensure that our existing R&D investment will allow PV firms to enter into commercial markets ahead of international competitors and to compete in future manufacturing development programs, SEIA proposes $28 M in funding for these programs which are heavily cost-shared with industry partners. Development of these strategic PV materials for enhancing commercial viability should be continued at the DOE laboratories, universities, and cost-shared with industry. Specific program funding is broken out as follows:
14.8	16.0	17.8	20.0	The **Thin-Film Partnership Program** is designed to accelerate the commercial development of low-cost thin-film modules. The program represents the fully coordinated efforts of NREL, leading U.S. thin-film companies, and universities in conducting world-leading research in the technologies. This thin-film program is focused on the development of truly low cost technologies that can meet our long-term goals. This strong, shared research with U.S. industry must be maintained.

8.2	7.0	7.0	7.0	SEIA recommends continuing work in **High-Efficiency Devices** for flat plate and concentrator applications to increase the knowledge of the performance limits. Focus should remain on high-efficiency, multijunction devices and support of industry to improve efficiency and reliability of current and next-generation products.
37.3	**36.0**	**31.6**	**35.0**	**Product and Process Development:** These programs should primarily fund industry-led efforts to advance collector technology, as well as the manufacturing technologies which support those collectors Details of each program are discussed below
18.0	19.0	17.6	19.0	With up to 50% of the funding cost-shared by the PV industry, the **Photovoltaic Manufacturing Technology (PV-MaT)** program continues to produce significant improvements in the manufacture of PV cells, modules, and most recently, integrated PV systems products. The PV-MaT program continues to be the best mechanism for assisting U.S. PV manufacturers in overcoming barriers to commercialization. During the first three years of the PV-MaT Project, the Phase 2A subcontractors report a combined quadrupling (15 to 60 MW) of their manufacturing capacity and an average cost reduction of 50% ($4.50 to approximately to $2.30) in the direct manufacturing costs associated with PV modules. Propose sustained advanced program to improve manufacturing methods oriented to marketable systems products.
19.3	17.0	14.0	16.0	**Systems Development, Concentrators, and Buildings** programs include efforts in technical system improvement, technology validation, and new product development. Specific program funding is broken out in the following three sections.
15.3	14.0	11.0	12.0	The **Systems Development Initiative** program is needed to accelerate integrated and certified packaged systems that meet customer standards for safety, performance, durability, and financibility. This program enables industry to enter the world market with such systems ahead of international competitors to maintain their competitive advantage and firmly establish U.S. standards as international standards. **Balance of Systems (BOS)** is crucial since components have lagged behind PV cell and module technology improvement. BOS, especially power conditioning technology, needs to accelerate improvements to parallel the solar cell/module improvements. SEIA proposes sustained funding to accelerate BOS improvements.
2.0	0	0	2.0	Success in prior **Concentrator Initiatives** has positioned this technology as a competitive, near-term, low cost energy producer; hybrid systems are even more competitive; and are well-suited for industrial applications and emerging international markets.
2.0	3.0	3.0	2.0	**PV Buildings Programs** like PV for Building Opportunities in the U.S. (PV-BONUS) help to close the final gap between the PV industry's components and production of products that can be routinely deployed in buildings. Consumers, architects, and utilities have stated interest.
3.0	**20.0**	**20.0**	**21.0**	**Commercialization:** DOE efforts should be directed toward developing sustainable, economically-driven, competitive markets. DOE should facilitate industry's overseas markets without compromising industry's prospects. Similarly, since domestic markets provide concentrated learning and a critical mass of experience which will strengthen overseas capabilities, DOE must support industry-led market pull initiatives while rigorously protecting the public investment.

1.0	18.0*	18.0	18.0	During the past two years, the **PV-COMPACT** program, a unique collaborative comprised of the solar industry, state consumer advocates, state utility regulators and electric utilities, has been designed to close a massive gap in electric utility understanding and acceptance of PV and to standardize its use. Over 90 electric utilities have pledged up to $368 million in a 70%, five-year cost-share with the federal government to integrate PV into the utility sector, thus creating the next generation of US-based PV manufacturing. The federal contribution buys down the regulatory risk needed by utilities to receive approval to integrate new technology on the electric grid. This program is based on the premise that for any industry to maintain global dominance, it must have a growing domestic market. The utility industry, its regulators, and consumer advocates all agree that photovoltaics has a rightful place in our energy future. [* In FY95, the Administration requested $18.0 M for the PV-COMPACT program. However, appropriations deficits combined with DOE adjustments left only $13.3 M for the program's precursor projects and core initiatives, and, of that, only $7.8 M for the originally-designed PV-COMPACT program.]
2.0	2.0	2.0	3.0	The **Design Assistance Center** at Sandia National Laboratory should continue to provide up-to-date design practices and technical interface with new users. SEIA recommends continuing support at increased levels.
3.6	**1.0**	**4.0**	**3.0**	**Capital Equipment:** SEIA recommends funding of $3 M to largely complete the refurnishing of the Solar Energy Research Facility (SERF) at NREL with technology measurement and evaluation equipment. Some funding should go to support universities involved in conducting performance and standardization testing and verification.
74.8	**91.0**	**88.1**	**94.0**	**TOTAL Photovoltaic Systems Program**

Solar Building Technology Research

The U.S. Department of Energy's solar buildings program engages in the research, development, and commercialization of low- and medium-temperature solar water and space heating equipment for buildings applications. The bulk of the federal effort to date has included technology testing and certification, with some focused technology development.

Solar thermal water heating technologies represent a highly cost-effective, proven, and reliable way to displace thousands of megawatts of energy. Today, more than 1.2 million buildings in the U.S. use solar thermal water heating technology to displace over 800 MWe while solar pool heating systems displace 350 MWe and represent the most cost-effective solar option today. To the extent that it has been funded, the solar buildings program has succeeded in creating a foundation on which to build markets for this set of technologies.

In order to reap the economic and societal benefits of solar water and pool heating system development, it is imperative that DOE support a set of carefully planned and executed market conditioning and commercialization strategies in collaboration with the solar industry, electric utilities, and federal and state governments.

There are several strong market indicators that solar water heating is on the cusp of wide-spread commercialization. The marginally higher start-up costs and lack of current data associated with deployment of this technology is the fundamental barrier to wide-spread commercialization. SEIA's recommendations are designed to directly address these barriers. Higher capital requirements are the result of both high marketing costs associated with advertising the technology's availability and an underutilized manufacturing base leaving opportunities for significant cost reductions to be gained through increased manufacturing. Today, solar thermal collector manufacturers are operating well under capacity. Therefore the thrust of DOE's Solar Buildings Program should be on market conditioning through collaborative approaches to mass procurement in the electric utility, building, and government sectors. At the same time, marketing costs must be offset by coordinating a campaign that touts the successes and advantages of solar water heating.

An additional $2 million over the $4.7 million base program appropriated in FY 1995 is needed to step up our efforts in market conditioning and technology deployment and the Utility Solar Hot Water Initiative (US H_20). These efforts need to be closely coordinated with the Market Transformation Program that is part of Energy Partnerships for a Sustainable Economy. Funding is also needed to support an initiative directed at providing technical information and support regarding solar water heating to builders and architects.

Additionally, continued development and acceptance of voluntary rating and certification programs by the Solar Rating and Certification Corporation (SRCC) are necessary to assure potential end-users of solar water heating's reliability and safety. Utilities and builder's interested in solar water heating need to mitigate financial risks by investing in technologies that have been tested and certified according to national standards.

SEIA's FY 1996 Budget Recommendations
($ millions)

Solar Building Technology Research

FY '94 Actual	FY '95 Actual	FY '96 Admin. Request	FY '96 SEIA Recommendation	Program Descriptions
4.804	4.692	4.657	**6.250**	TOTAL for Solar Building Technology Research
.860	1.450	1.420	2.475	**Market Conditioning and Technology Deployment:** Solar thermal water heating technologies represent a highly cost-effective, proven, and reliable way to displace thousands of megawatts of energy. Today, more than 1 million buildings in the U.S. use solar thermal water heating technology to displace over 800 MWe while solar pool heating systems displace 350 MWe and represent the most cost-effective solar option today. These market conditioning and technology deployment activities are essential for reducing cost of equipment, removing market barriers to commercialization, enhancing public awareness, and assuring project replication. Programs include:
.467	.480	1.000	2.000	**The Utility Solar Hot Water Initiative (US H_20)** is a collaborative program of the DOE, the solar thermal industries, and public and private utilities to assist utilities interested in incorporating solar water heating technologies into a new utility market mechanism for energy service programs. The program has the parallel goals of assisting utilities in reducing demand to avoid building new capacity while aggregating smaller markets to create economies of scale for the solar thermal water heating industries. SEIA recommends $2 M for the US H_2O Initiative in order to allow utilities to engage in replicable pilot programs including substantial hardware deployment and also to coordinate with the solar water heating initiative under the Energy Partnerships for a Sustainable Economy as well as the Federal Energy Management Program.
0	.050	050	.100	**The New Construction Initiative for Builders and Architects** focuses on the sector of the domestic economy with the greatest potential for new deployment of solar thermal hardware. The U.S. solar thermal industries strongly recommend $100 K for use in promoting education and technical information transfer to builders and architects.
0	0	0	.025	**International market activities** should be funded at $25 K to support U.S. industrial export growth. SEIA believes that the DOE should focus this funding on proposing changes to the international Harmonized Codes system and the new North American Industrial Classification codes (formerly SIC codes) to facilitate more equal tariff treatment for U.S. technologies in world markets. U.S. solar thermal equipment could prominently meet growing energy demand in many developing countries, where hot water is responsible for between 11 and 35 percent of all energy consumed, and whose markets would sustain nearly $2 billion annually in U.S. products.

393	920	.370	350	**Support and Coordination Activities** between the DOE's Solar Buildings Division and other activities in FEMP, OTFA, the Energy Partnerships for a Strong Economy Program, and industry are critical to maximize the impact of federal investment in solar thermal technologies.
1.325	**.775**	**.774**	**.800**	**Ratings and Certification:** The voluntary rating and certification testing programs are the foundation that utilities and builders interested in solar water heating rely on in order to mitigate financial risks through investment in solar energy technologies. Programs include:
1.325	.775	.774	.775	Continued development and acceptance of voluntary rating and certification programs by the **Solar Rating and Certification Corporation (SRCC) and its technical assistance programs** are necessary to assure potential end-users of the reliability and safety in technologies that have been tested and certified according to national standards. The program should include vocational training as a component to insure installation quality.
0	0	0	.025	Participation of the U.S. industry in the development of **International Standards** must continue to ensure that the U.S. solar thermal industries are not artificially blocked from potentially large international markets.
.660	**.375**	**.375**	**.375**	**Reliability & Maintainability:** Hundreds of thousands of solar thermal systems were installed in the early 1980's, during a period of rapid industry growth. SEIA supports this DOE request as the most efficient manner to understand problems encountered in the field and transfer the information back to industry and the laboratories to develop even better products. Additional funding is required to compliment and verify the ratings and certification programs and to validate commercial design and installation manuals for large scale active solar systems.
1.357	**1.405**	**1.402**	**1.850**	**Advanced Concept Research:** SEIA recommends further research to continue to reduce market barriers associated with small scale production cost and improve system efficiency. The program goals include reducing system cost and improving system performance by more than 20 percent, while continuing to examine new materials that may have applications in low- and medium-temperature solar thermal technologies. Programs include:
0	400	400	.700	The **Advanced System Components (Cost-Shared RFP) Program** is an industry cost-shared R&D program, conducted in conjunction with NREL, oriented toward testing new research concepts on a competitive basis. SEIA strongly supports this innovative, industry-led effort to attain greater efficiency in solar thermal technologies and recommends FY '96 funding of $700 K
1.180	1.005	1.002	1.250	Research on **Innovative System Concepts** and **Balance of System Development** support long-term operational performance to develop innovative systems with advanced materials that will compete in today's market in the U.S. and abroad. SEIA recommends funding levels of $652 K and $598 K respectively.
410	0	0	0	SEIA maintains its position that all **Collector Materials** research activities should be contained in the Innovative Systems Concepts Program.

.408	.500	.500	.500	**PV Buildings Research:** The U.S. DOE Buildings program should continue to provide support for the photovoltaic industries' accelerating entry to the multimillion dollar buildings market. Developing PV modules which can be integrated into buildings is a high priority, and several companies are currently meeting great success developing building glass and roofing materials which incorporate PV. The goal of the Building Integrated Photovoltaics (BI-PV) program should be to support these firms in their efforts to demonstrate, validate, and deploy the first generation of these building products. If the FY'96 Solar Buildings funding is not increased over FY'95, this program should not be funded.
.194	.105	.186	.150	**Capital Equipment:** SEIA supports the DOE request for $150 K for expansion of a test facility for additional advanced system components
4.804	4.692	4.657	**6.250**	**TOTAL for Solar Building Technology Research**

THE SOLAR INDUSTRIES' FY 1996 APPROPRIATIONS RECOMMENDATIONS for the U.S. DEPARTMENT OF ENERGY

Solar Thermal (Power and Industrial) Technologies

In 1990, industry, in partnership with DOE and its national laboratories, instituted an ambitious program to develop and commercialize a unique set of next generation solar thermal electric technologies by the late 1990's called STEPS (Solar Thermal Electric Power Systems). While first generation solar thermal electric systems had achieved tremendous success in a short period of time in the 1980's - 354 MW of systems representing over 90% of the world's solar thermal electric capacity were developed by US firms in California and continue to operate reliably today - it was clear that falling fossil energy costs would require the development of even more efficient technologies. Industry and DOE embarked on a series of 50-50 cost-shared joint venture projects to bring next generation technologies to market.

Five years into the process, STEPS has achieved strong success. All the joint ventures are on time and on budget. Solar Two - the prototype for next generation solar-only baseload systems - is nearing completion and will be operational in early 1996. One solar dish-engine manufacturer will begin commercial production of its 7.5 kW dish engine in 1997; the larger 25 kW engines being developed by two other solar manufacturers will be ready for production in 1997-1998. There has been a resurgence of parabolic trough project development opportunities in international markets.

With this initial success, it is important not to loose sight of the original goal set by STEPS: full commercialization by the year 2000. There are two important phases of STEPS remaining: (1) developing advanced manufacturing techniques to take the prototypes developed in the joint ventures into low cost mass production and (2) to assist in the development of the crucial early commercial projects. SOLAR-MaT is a cost shared program designed to solve key manufacturing problems and budget increases are appropriate as we shift emphasis from development to manufacturing. The newly created Solar Enterprise Zone - a solar economic development zone centered in southern Nevada - creates an excellent opportunity for early commercial solar thermal electric projects with low cost financing and power marketing assistance. These efforts are based on the premise that for any industry to maintain global dominance, it must have a growing domestic market. In addition, there is growing interest in international markets with several possible projects identified. The program needs to support, in an appropriate fashion, early commercial projects in the Solar Enterprise Zone and in international markets.
Based on realistic market projections and continued support of the STEPS program, these new technologies can provide 40,000 in annual jobs by 2002-2005.

On the Solar Industrial side, industry, DOE and the national labs have put together a 5 year program plan to expand the commercialization of solar process heat technologies in domestic and international markets called SHIP (Solar Heat for Industrial Processes). SHIP improves the existing program by better coordinating its elements to achieve clear cut goals. It is modeled in many ways after the success of STEPS, and is industry cost shared 2 to 1, but FY1996 funding is crucial so U.S. industry does not lose ground against international firms aggressively supported by their home governments. Through this program, we have an opportunity to create at least 1000 new, sustainable jobs in the solar process heat industry within 5 years.

SEIA's FY 1996 Budget Recommendations
($ millions)

Solar Thermal Power and Industrial Programs

FY '94 Actual	FY '95 Actual	FY '96 Admin. Request	FY '96 SEIA Recomm-endation	Program Descriptions
31.4	32.7	33.9	**38.0**	**Combined Total for Solar Thermal Power & Industrial Programs**
				Solar Thermal Power Programs
24.0	25.1	26.0	**29.0**	**Total for Solar Thermal Power Programs**
15.8	14.7	14.8	15.6	**Commercial Applications/Systems Development:** Funding will allow the continuation of the existing multi-year programs to develop "next generation" solar thermal electric prototypes which can then be put into mass production. All projects are 50-50 cost shared with industry and are on time and on budget relative to original program targets. There is continued strong commitment from industry to develop these products and expanding interest in domestic and international utility and other end use markets. Programs include:
7.6	2.1	2.1	2.1	**Solar Two** is a prototype for next generation power towers which through effective thermal storage, will have the capability of providing dispatchable, baseload power – day or night, rain or shine. It is being developed by an 8 utility consortium and industrial partners. Solar Two is under construction and will be operational as originally scheduled in the first quarter of 1996.
1.6	1.4	0.9	0.9	The **7.5 kW Dish Engine Joint Venture Program** with Cummins will produce a manufacturing prototype by the end of 1996;Cummins plans to begin limited commercial production in 1997 with volume ramped up in subsequent years.
4.4	9.0	10.6	10.6	In the **25 kW Dish Engine Joint Venture Program**, two teams led by SAIC and Cummins are in the second year of five year projects which are developing prototypes ready for mass production in the 1997-1998 time frame. Funding will allow the existing teams to continue work and to initiate a third team as was the original program plan.
1.0	1.0	0.0	1.0	Continued funding for the **Trough Cost Reduction Program** is important because it will support design improvements and further operating enhancements which will allow US industry to capture a greater share of international project opportunities for this currently available technology.
1.2	1.2	1.2	1.0	**Design Assistance** funding will allow the DOE and its labs to continue to provide design assistance and education on solar thermal electric projects to industry and end users in domestic and international markets. This is important because end users need objective advice on how best to apply these new technologies, which increases market demand and acceptance.

1.2	**2.3**	**3.1**	**4.8**	**SOLAR-MaT:** SOLAR-MaT is a program designed to reduce the costs of solar thermal electric plants by focusing on reducing manufacturing costs of system components. Projects are developed and cost shared by industry in order to solve real world manufacturing issues. Funding will allow the next generation prototypes developed through the Solar Two and the Dish Engine joint ventures to be put into low cost mass production without long lead times, significantly enhancing industry's ability to achieve international competitiveness. SOLAR-MaT is the crucial next step in driving solar thermal technologies into the commercial market place, and it is extremely important to increase funding levels.
6.5	**6.5**	**6.4**	**6.2**	**Core Research and Development:** Core research continues to be an important element of the overall program. Funding will allow the continuation of projects to enhance the performance, durability, and lower the cost of existing and next generation system components and allow US firms to maintain their current lead in technology into the future. Projects include:
1.4	1.4	1.2	1.2	**Reflective Materials Research & Development** focuses on mirrors, the largest cost element for all solar thermal electric technologies Research to increase the life and lower the cost of reflective materials is extremely important to developing lower cost mirrors.
1.0	1.5	1.7	1.7	**Development and Demonstration of Stretched Membrane Mirrors for Dishes and Power Towers** is pivotal to the next generation of power tower heliostats and dish engine concentrators. They show great promise to significantly reduce the cost of solar thermal electric technologies over traditional glass mirrors. Further development is required to improve durability and optical performance.
2.1	1.7	1.6	1.6	Further **Development of Reflux Receivers for Dish Engines** is a key component for advancement of dish engine systems. Funding will allow for testing and improving existing receivers to assist the dish engine joint venture efforts as well as development of advanced receivers.
0.9	0.9	0.9	0.7	**Development and Testing of Advanced Engines for Dish Applications** funding will allow for "solarization" and testing of these advanced engines which have been developed for other applications but show good potential for solar applications.
1.0	1.1	1.0	1.0	**Technology Support for Pumps, Valves, and Transport Systems** are needed for the new molten salt storage and transport system at Solar Two, a first of its kind project aimed at providing 24 hour solar electric power.
0.5	**0.5**	**0.5**	**0.5**	**Capital Equipment:** Capital equipment funding of $500 K should be allocated to purchase equipment for optical material development and analysis, as well as support equipment for receiver and dish/engine tests.
24.0	**25.1**	**26.0**	**29.0**	**Total for Solar Thermal Power Programs**

FY '94 Actual	FY '95 Actual	FY '96 Admin Request	FY '96 SEIA Recommendation	Program Descriptions
Solar Thermal Industrial Programs				
2.0	3.0	3.3	5.0	Process Heat. Funding provides for an industry-driven partnership with government called SHIP (Solar Heat for Industrial Processes). SHIP acts as a catalyst to expand sustainable growth of the solar process heat industry. SHIP is a 5 year plan that builds on the existing program by coordinating market development, project financing, and technology development in a highly leveraged (overall $1 from the program leverages $2 from industry), and cost effective fashion. By lowering system costs by encouraging technology advancement and mass production, the program will enhance the industries competitiveness in rapidly expanding export markets where they face stiff competition from European and Asian firms aggressively supported by their home governments. The program will create 1,000 new jobs in the process heat industry.
1.0	1.0	1.0	1.0	Advanced Industrial Processes. High flux solar energy has unique properties which can be used to process advanced materials in ways not achievable with conventional furnaces. Funding will provide for further research with industrial end users to develop commercial applications.
4.3	3.3	3.3	3.0	Solar Detoxification. Heat and light from the sun can be used to treat industrial and municipal waste. Several solar detoxification applications developed in the labs and through cooperative research with industry show promise to significantly reduce waste treatment costs. The labs, solar technology companies, and end users are working together to commercialize these applications. Funding will allow the labs to continue basic research and to fund cost-shared field demonstrations.
0.0	0.1	0.2	0.0	Capital Equipment. SEIA does not perceive any immediate need for major capital equipment expenditures.
7.3	7.6	7.9	9.0	Total for Solar Industrial Technology Programs
31.4	32.7	33.9	38.0	Combined Total for Solar Thermal Power & Industrial Programs

SEIA's FY 1996 Budget Recommendations
($ millions)

Miscellaneous Solar and Other Renewable Energy Programs

FY '94 Actual	FY '95 Actual	FY '96 Admin Request	FY '96 SEIA Recommendation	Program Descriptions
Energy and Water Subcommittee				
6.5	9.1	20.0	11.0	**Solar International**. At least $1 million should be continued to support the Committee on Renewable Energy Commerce and Trade (CORECT), the federal interagency board established to coordinate international renewable energy programs. At least $5 million should be provided to continue building markets in Latin America through "America's 21st Century" program. The remaining $4 million should be divided evenly among the U.S. Export Council for Renewable Energy's Asian market initiative, the Renewable Energy Training Institute (RETI), the Renewable Energy for African Development (REFAD) program, and multimedia development through the Solar Energy Research and Education Foundation.
0	10.0	3.0	1.0	**Renewable Energy Production Incentive (REPI)**. Established under EPAct, this program provides a direct payment of 1.5 cents per kilowatt hour of renewable energy generated as a result of public utility or state owned facility installation of renewable energy systems. Although the solar energy industries supported REPI in its inception, there is now serious concern that for several fundamental reasons related to its implementation, this program will not act as an incentive for solar energy project installations. Moreover, SEIA objects strongly to the manner in which the program was funded in FY'95. The Administration requested $3 million and Congress imposed an "unfunded mandate" by allocating $10 million for REPI without raising the total provided for renewable energy programs, causing DOE to "tax" the core programs such as PV, solar thermal power, and solar buildings to make up the $7 million deficit. This program should continue only if funding is explicitly provided by Congress. Furthermore, SEIA reiterates its position that solar water heating and industrial process heat should qualify for the incentive.
2.2	3.95	4.56	5.0	**Resource Assessment (Solar)**. Accurate measurements of the amount of solar radiation available at any particular site in the nation or the world is crucial for cost effective design and installation of solar energy systems, most particularly for the larger solar thermal power and industrial systems and for the larger PV systems. Over-designed systems to account for inaccurate solar radiation data can result directly in unnecessarily high system costs and lost opportunities in domestic and international sales. SEIA strongly supports NREL's solar radiation program, with the proviso that it receive much stronger solar industry and electric utility review for content and direction, to help ensure that data is relevant to solar technology systems deployment

10.66	11.02	10.81	15.0	**Commercialization Ventures:** For four years now the DOE has supported an Advisory Committee for this program to recommend guidelines for government-industry cost-sharing in renewable energy project development. The Congress in establishing this program in P.L. 101-218 and in EPACT gave DOE wide authority to implement this "Joint Ventures" program in creative, unprecedented ways to accomplish the objective: overcoming market barriers for technologically ready renewable energy systems. The Advisory Committee has repeatedly recommended the use of an intermediary organization to solicit and disperse funds for this program. SEIA and its member companies were disappointed in the business-as-usual nature of the DOE's Request for Proposals document issued last year, and strongly recommends that the DOE utilize the organization, USAFREED, to manage cost-shared project development under this program. SEIA has been highly patient with this effort, which began in 1989, but is prepared to retract its support if the program does not begin to meet its original Congressional intent in the near future.
9.59	9.61	7.44	10.0	**Hydrogen:** Every year, the solar energy industries request funding for hydrogen R&D focused on generating hydrogen through the use of renewable energy technologies. This program, however, should have formal input from the solar energy industries and other relevant industry organizations, as well as a collaboratively developed commercialization plan.
7.09	5.77	5.92	7.92	**Energy Storage:** The ability to store energy effectively and efficiently is paramount to the successful integration of solar energy systems into the energy service infrastructure. Battery storage for photovoltaics and molten salt storage for solar thermal "power tower" technology, for example, are priorities for the solar industries. To demonstrate the solar industries' strong support for these efforts, SEIA is recommending a $2 million increase over the Administration request for cost-shared collaboratives among industry sectors that would most benefit from advances in energy storage capabilities.
				Interior Subcommittee
15.55	23.47	25.41	25.41	**Federal Energy Management Program:** The Executive Order issued in April 1994 made it clear that the federal government, the largest consumer of energy and the largest owner of buildings property in the world, should procure energy-efficient products including renewable energy systems where they are cost-effective. A wide variety of solar energy systems meet the cost-effective criteria today, particularly for water heating, perimeter lighting, thermal/electric load augmentation, and remote power. This program should evolve to develop geographical regions of focus, integrate its activities with user collaboratives state programs. SEIA recommends the use of specialized technical and industry "swat teams" to implement FEMP.
n/a	na/	n/a	n/a	**Solar Water Heating Program / Energy Partnerships for a Strong Economy:** SEIA believes the Administration was right on target in initiating the effort to better integrate energy-efficient technologies into commercial and residential buildings. SEIA urges that this program be funded at its requested level, and that a solar water heating be explicitly included. A successful effort to further integrate solar water heating into utility programs, through energy service companies, will go a long way toward reaping high economic rewards of DOE's investments in solar water heating technology R&D.

Mr. MYERS. We appreciate the job you have done.

Mr. Fazio?

Mr. FAZIO. I think Scott and the industry made a good presentation today. They do understand the difficulty. I guess it was evident in the rescission package regrettably——

Mr. SKLAR. It hurt me. I lost hair.

Mr. FAZIO. We will hope that not only is the Department still around but your program is in reasonable shape when we share this markup.

Mr. MYERS. Maybe that hurt me a few years ago.

Mr. SKLAR. Be careful; it is cloudy day to boot.

Mr. MYERS. You were going to light up the place.

TUESDAY, MARCH 28, 1995.

PHOTOVOLTAICS

WITNESS

LIZA K. BOWLES, PRESIDENT, NAHB RESEARCH CENTER

Mr. MYERS. Liza Bowles, President of the NAHB Research Center. Your prepared statement will be placed,in the record.

Ms. BOWLES. Thank you. It is good to be here today. I represent the National Association of Home Builders Research Center. We are a wholly owned subsidiary of the National Association of Home Builders, a trade association with over 180,000 member firms.

We build over 80 percent of the residential and light frame commercial buildings in the U.S. It is a very broad base, disaggregate industry. Our role is to bring them new technology and show them different products and processes that can increase the quality and affordability of the buildings built in the United States.

What I would like to talk a little bit to the committee about today is work that we have done with the photovoltaic industry through DOE funding directly from the manufacturers and some of the utilities.

Back in 1992, we did—we have a research home park 45 minutes from here in Bowie, Maryland where we did a resource conservation house. We wanted to incorporate photovoltaics to demonstrate to the building industry what you could do in the area of energy conservation and resource conservation. The best we could do at that time was using the crystalline technology, use the power backup lighting and emergency lighting.

It was effective as a demonstration project, but what I wanted to advise the committee of today is that we have come a long way since then. Working with the industry, we are in the process of building four townhouses; and those four townhouses will have a theme of advanced energy efficiency. They are built in the same research home park.

On one of the roofs on those townhouses, we will be mounting a technology, the amorphous technology PV technology. This is one of the panels that we have been using made to look like a typical roofing shingle. When you match the color with asphalt shingles, it does very well. We have used this on a demonstration building, gotten consumer and builder feedback. It goes up like another roofing shingle. It is a good product.

We will be trying this on the townhouses—those houses have metal standing seam roofing and we have laminated some of the amorphous product onto that metal roofing. It blends in very nicely with the other roofs on those townhouses, and I think is a good example of how the PV industry is trying to reach out to the end users. We are very supportive of that.

The industry has come a long way and we are very happy to be working in that environment.

[The statement of Ms. Bowles follows:]

STATEMENT
by
LIZA K. BOWLES, PRESIDENT
NAHB RESEARCH CENTER
SUBSIDIARY
of
THE NATIONAL ASSOCIATION OF HOME BUILDERS
before the
ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
on
DEPARTMENT OF ENERGY
FY 96 APPROPRIATIONS

March 28, 1995

Mr. Chairman and Members of the Subcommittee:

I am Liza Bowles, President of the NAHB Research Center, which is a wholly-owned, not-for-profit subsidiary of the National Association of Home Builders. NAHB established the Research Center in 1964. Our function is to keep U.S. home building closely tied to new technology and changing needs.

In my testimony today, I would like to call particular attention to the technology called photovoltaics (PV), and its potential value for supplying electricity to American homes.

Photovoltaics

Photovoltaics is the conversion of sunlight into electricity. It is one of the most environmentally safe and desirable forms of renewable energy. With funding from the U.S. Department of Energy (DOE), the NAHB Research Center is conducting a program to foster the development of photovoltaic products and systems that can be integrated into the design of homes, and to help bring them into the marketplace. Energy savings are potentially immense.

We believe that, with adequate support from Congress and DOE, photovoltaics can enter the mainstream of home building more rapidly than most people realize. We strongly urge that this be achieved.

The Cost of PV

A basic obstacle to home PV has been cost. But costs are coming down. Photovoltaic modules that sold for $50 per rated watt of peak generating capacity in 1970 dollars, sell for $5 to $7 per watt today. Current costs for electricity from PV run from 25 cents to 50 cents per kilowatt hour, but new products may be able to bring the cost down to 16 cents/kwh, or even as low as 12 cents/kwh. Electricity from local utility grids typically costs 5 cents/kwh hour today, and may well increase. The gap is closing.

Feeding Power Back Into the Utility Grid

One result of home PV use would be an increase in distributed power generation, relieving the pressure to construct capital-intensive and environmentally controversial central generating facilities. At some hours of the day, home PV systems could produce surplus electricity, which could be fed back into the power grid. This would reduce both the utility's load and the home owner's electric bills.

Crystalline Silicon Units at The Resource Conservation House

The Research Center builds research and demonstration homes in the NAHB Research Home Park, which is located near our suburban Washington headquarters. In 1992, we built a house in the Park which we called the Resource Conservation House. The house employs a PV array utilizing rigid crystalline silicon units, that is mounted on the back of the housing of a backyard swing. This array can generate enough electricity to operate external lights around the house, and to provide emergency lighting in the home.

The Resource Conservation House received widespread coverage in newspapers, magazines, and TV, and the PV array created special interest and attention. The House and the publicity that it attracted helped to bring about a major advance in public interest in the technology.

Crystalline Silicon and Amorphous Silicon

Until recently, PV technology has been based on the use of crystalline silicon of the type used in the Resource Conservation House, as the light-to-energy conversion material. With current technology, this material can convert more than 12 percent of the sunlight that it receives into electricity.

An alternative approach that is being studied with increasing interest utilizes silicon in thin films. Its conversion efficiency is lower than that of crystalline silicon, but it offers the potential of lower mass production cost, and is often seen as the best option for cost-effective home photovoltaics.

The conversion of amorphous silicon has typically been less than 6 percent. However, prototype technologies utilizing amorphous silicon has been able to covert over 10 percent of sunlight to electricity.

An addition to its economic advantages, we have been interested in amorphous silicon for PV applications because it can be incorporated into flexible instead of rigid substrates. Panels of PV units can be made in the form of "shingles," and can be designed to look like a standard roofing product. DOE estimates that such "shingles" could supply all the daytime electric power needs of a south-facing home. That poses fascinating challenges, and we are investigating them fully.

Amorphous Silicon Roof Units on A Steel House Frame

In December 1994, with DOE support and funding, we constructed the steel frame for a house, right in our parking lot. We added plywood sheathing to a portion of the roof. Onto this sheathing we attached a section of house "shingles" containing amorphous silicon. Our purposes in making this installation were :

- to study issues relating to the design of the product;
- to develop installation techniques that can be used by roofers; and
- to study the material's performance in an actual roofing application.

The 21st Century Townhouses Project

We are now building four research townhouses in the Research Home Park, called the 21st Century Townhouses. These houses will feature products and systems that reflect two themes -- alternatives to lumber in home construction, and advanced energy efficiency.

All four of the townhouses will have steel roofs. Plans call for the installation of a full array of amorphous silicon "shingles" on the south-facing side of one of the roofs. This will constitute the first whole-roof application of amorphous silicon shingles, and will bring this important technology a major step closer to the marketplace.

Building-Integrated Photovoltaics

Amorphous silicon "shingles" offer one approach to incorporating PV into house design, but a greater variety of approaches must be developed. For example, many houses do not have a south-facing roof, which is the orientation needed for best results from PV "shingles." Additional architectural and technical solutions are required.

The Research Center is participating in a program sponsored by DOE to investigate the integration of PV into homes and light-frame buildings. We are working with builders and utilities to demonstrate simple, cost-effective designs and construction methods for creating building-integrated PV. The program involves:

- identifying major barriers to the use of PV systems;
- identifying PV applications and products that are best suited to building integration and the utilities' demand loads;

- helping to develop strategies to overcome obstacles to PV market penetration;
- assisting in developing standards, specification, and procedures for successful PV applications;
- preparing guidelines and manuals for building-integrated PV; and
- communicating the benefits of PV to the home building industry and to home buyers.

Congress, DOE and Photovoltaics

We strongly encourage Congress and DOE to continue their support of the program to improve and commercialize photovoltaics. The effort constitutes an investment in America's energy future that can produce an immense return. The National Association of Home Builders and the NAHB Research Center are pleased to continue the joint program with DOE and Congress, to move this technology from the fringes of home building into the mainstream of the marketplace.

Mr. MYERS. How soon will that roof be commercial?

Ms. BOWLES. I think it will probably be a few years. We are making sure as they are developing it, it is a product that can withstand the building trades and can go up easily. This is a prototype product that right now is not commercially available, but I think if we are successful with it, it could be commercially available in the next couple of years.

Mr. MYERS. Will it withstand hail?

Ms. BOWLES. It will. It is a real tough product. Even with the metal roofing, and the metal roofing has a 20-year guarantee on it, once the PV cells are laminated, it probably gives it much better than a 20-year product life; so it is a very durable product and that is one of the benefits——

Mr. MYERS. This summer I need a new roof. I can't count on having put one of those on. You think I am kidding.

Thank you very much for your testimony.

Ms. BOWLES. Thank you.

TUESDAY, MARCH 28, 1995.

BIOFUELS PROGRAM

WITNESS

TOM SANFORD, MAYOR PRO TEM, CITY OF GRIDLEY, CALIFORNIA

Mr. MYERS. The committee welcomes back a former colleague of ours from Arizona, Eldon Rudd, who served on this subcommittee. We are pleased to have you back.

Mr. Fazio.

Mr. FAZIO. Thank you, Mr. Chairman. The next group is headed by Tom Sanford who is the mayor pro tem of the City of Gridley. I want to say by introduction that not only am I pleased to represent this community, but Tom and those associated with him in the city, have done an outstanding job of moving this project very quickly. I think Mr. Riggs will be interested in this testimony because I think what we are talking about doing with rice waste may also apply to wood waste at some point.

Nice to have you here.

Mr. SANFORD. Mr. Chairman and members of the committee, my name is Tom Sanford. I am the mayor pro tem of the City of Gridley in the San Fernando Valley, California. Thank you for the opportunity to appear before the subcommittee this morning.

We appreciate the Subcommittee's past support, particularly the support of Congressman Fazio as well as Congressman Wally Herger who represents one of our coparticipants, the City of Biggs, three miles north of us. They have been working hand in hand to get this project going.

Over the last year, the City of Gridley has put together a consortium that we believe can match the capabilities of any similar concern in the United States. We have proven engineering capabilities through Amoco and Stone and Webster, and the backing of two major California utilities in the Northern California Power Agency and the Sacramento Municipal Utility District; the California Department of Food and Agriculture, the University of California at

Davis; and the California Rice Industry Association. So there is a broad consortium.

In addition, Mr. Chairman, our consortium has worked very closely with the Department of Energy's National Renewable Energy Laboratory, and, in the process, won the laboratory's strong confidence and endorsement. We have also cleared some key tests of rice straw as a biomass fuel and begun the final technical assessment of the key technologies that make up our proposed process.

The city is also working with the Northern California Power Agency and the City of Santa Clara in the commercial development of fuel cells and their utilization through the gasification of biomass fuels.

None of this progress could have been made without the support and backing of this subcommittee in the fiscal year 1995 Energy and Water Development Appropriations Act. For that we are most thankful. The $1.2 million appropriated by the Congress last year for this effort was essential to bringing together all of the resources that we have amassed to pursue the construction of a biomass ethanol plant for the benefit of our region, the State and the Nation.

Mr. Chairman, in order to move the research and development work to the next step, to the construction of a biomass ethanol plant, the City of Gridley and its non-Federal cost-share partners request $5 million in matched funds for fiscal year 1996. The request represents what is intended to be the first of two equal commitments of Federal resources that will be needed in order for the City of Gridley and its partners to construct the optimum sized biomass ethanol plants.

We seek these funds in addition to the $23.878 million that is requested by the Administration in the 1996 budget proposal for biochemical conversion. We believe the research and experimental activities supported by the Administration's fiscal year 1996 request, particularly the work associated with the new biomass pilot facility at NREL, will be critical to the success for the Gridley project and future biomass efforts. It is for these reasons that we ask the subcommittee to direct that any funds provided for the Gridley biomass plant not result in reductions to the base biochemical conversion budget.

Why is there a need for the Federal Government to make this investment? The Federal Government has invested literally hundreds of millions of dollars to aid in development of this new technology which we believe will more than halve the cost of producing ethanol. From the status that we know today, that subsidized the base and makes it free of subsidy. Unless the Federal Government financially assists in the commercialization of this technology it likely won't happen because the financial community will be unable to demonstrate above the technology.

To the question why is the Sacramento Valley the ideal location to commercialize this new technology, I say that the Sacramento Valley has within it and its near environs the widest possible variety of feedstocks. We believe this technology will be a cost-effective way to utilize forestry and timber wastes as well as general agricultural wastes.

Mr. Chairman, I would like to make one final point: The City of Gridley and its partners are prepared to match dollar for dollar any funds appropriated for the construction of our proposed biomass ethanol plant. We have the resources available to match the full $5 million request for fiscal year 1996.

Thank you for your past support and for the opportunity to testify today. I would be happy to answer any questions.

Mr. MYERS. Thank you for your testimony and your offer here of 50/50. That is better than most people are willing to make.

[The statement of Mr. Sanford follows:]

CITY OF GRIDLEY

685 Kentucky St.
Gridley, CA 95948

Statement of the Honorable Tom Sanford
Deputy Mayor
City of Gridley, California
Before the House Appropriations Subcommittee
on Energy and Water Development
The Honorable John Myers, Chairman
March 28, 1995

Mr. Chairman, Members of the Subcommittee, my name is Tom Sanford, and I am the Mayor Pro Tem of the City of Gridley, California. I also serve as Gridley's commissioner on the governing board of the Northern California Power Agency.

Thank you for the opportunity to testify before the Subcommittee regarding the progress that the City of Gridley has made over the last year in developing a biomass facility fueled by rice straw.

Let me say from the outset that we greatly appreciate the Subcommittee's past support, particularly the support of the City of Gridley's own congressman, Congressman Vic Fazio, and Congressman Wally Herger who represents the City of Biggs, just three miles north of Gridley, and we look forward to continuing to work with you to establish a cost-effective, subsidy-independent, renewable source of liquid fuel for both transportation and power production purposes as well as expand the commercial relationship between biomass and fuel cells for power generation.

The City of Gridley, which operates its own electrical utility, is involved in the development of this technology for a number of reasons. First, the City of Gridley is a rural community situated in the rice growing region of the Sacramento Valley in Northern California. Our community and region are dependent upon an agricultural economy largely based upon rice production. Thousands of jobs and more than $500 million of the Sacramento Valley's economy are directly dependent upon the rice industry.

The rice industry, however, is coming under tremendous pressure because of new mandates to reduce air pollution and end open field burning of rice acreage. Currently, open field burning has been statutorily reduced to 60 percent of a grower's acreage. By the year 2000, the automatic right to burn rice stubble in open fields will be essentially eliminated. Given that there are insufficient cost-effective mechanisms to remove rice straw from the fields, we are greatly concerned that the restrictions on burning will lead to a reduction in rice acreage in production. A substantial portion of the rice grown in the Sacramento Valley is grown on land with very heavy clay soil types which are suitable for very little other than rice. The elimination of burning as a means of dealing with the very tough rice straw is having a significant impact upon the economics of rice growing in the Valley.

Second, the City of Gridley is very concerned about the reliability of its existing source of electrical power. The City of Gridley's Western Area Power Administration (WAPA) electrical contract expires in 2004. Early projections indicate that our WAPA allocations could be reduced by up to 60 percent. In addition, the administration's proposal, in the 1996 budget, to sell-off the WAPA facilities, has created even further uncertainty as to the ongoing sources of electrical energy from which the City will serve the electrical needs of its citizens on an affordable basis.

It is the confluence of these two issues -- the mandatory elimination of the burning of rice straw in open fields and the threatened loss of the majority of our WAPA power -- that has led the City of Gridley to aggressively pursue the construction of a biomass ethanol plant to help protect our agricultural economy and address our near-term and long-term power needs.

Over the last year, the City of Gridley has put together a consortium that we believe can match the capabilities of any similar concern in the United States. We have brought together some of the top companies in the country that have focused on the development of a domestic liquid fuel biomass industry. We have proven engineering capabilities through Amoco and Stone and Webster, and the backing of two major utilities (Northern California Power Agency and the Sacramento Municipal Utility District), the California Department of Food and Agriculture, the University of California at Davis and the California Rice Industry Association. In addition, Mr. Chairman, our consortium has worked very closely with the Department of Energy's National Renewable Energy Laboratory, and, in the process, won the laboratory's strong confidence and endorsement. We have also cleared some key tests of rice straw as a biomass fuel and begun the final technical assessment of the key technologies that make up our proposed process.

The City is also working with the Northern California Power Agency and the leadership of the City of Santa Clara in the commercial development of fuel cells and their utilization through the gasification of biomass fuels.

None of this progress could have been made without the support and backing of this Subcommittee in the fiscal year 1995 Energy and Water Development Appropriations Act. The $1,200,000 appropriated by the Congress last year for this effort was essential to bringing together all of the resources that we have amassed to pursue the construction of a biomass ethanol plant for the benefit of our region, the state and the nation. It is important that the technology developed by NREL and Amoco be applied on a commercial basis to satisfy the financial community that the technology will compete independent of Government subsidies. Again, for that we are very grateful.

Mr. Chairman, in order to move the research and development work to the next step, to the construction of a biomass ethanol plant, the City of Gridley and its non-Federal cost-share partners request $5,000,000 in fiscal year 1996. The request represents what is intended to be the first of two equal commitments of federal resources that will be needed in order for the City of Gridley and its partners to construct the optimum sized biomass ethanol plant.

We seek these funds in addition to the $23,878,000 requested by the administration for biochemical conversion. We believe the research and experimental activities supported by the administration's fiscal year 1996 request, particularly the work associated with the new biomass pilot facility at NREL, will be critical to the success of the Gridley project and future biomass efforts. It is for these reasons that we ask the Subcommittee to direct that any funds provided for the Gridley biomass plant not result in reductions to the base biochemical conversion budget.

Why is there a need for the federal government to make this investment? Currently, biomass to ethanol production is primarily conducted in the mid-west using corn husks and waste as the principal feedstock. Ethanol is the sole product of this current process, which makes the economic viability of the technology completely dependent upon the current state of the ethanol market.

The technologies that will be used in the Gridley project more fully utilizes the feed stock to produce a number of useful products while at the same time minimizing the byproducts requiring disposal. This will significantly improve the sustainability of the project and the technology.

In addition, rather than using a single feedstock that would necessitate a more seasonal operation, like most current biomass facilities, the Gridley project envisions the use of multiple feed stocks to keep the plant operating year-round. The construction of the Gridley plant will develop the technologies and processes necessary for the cost-effective use of forest and timber industry byproducts as well as agricultural waste products. We intend to test and use vineyard clippings and orchard prunings as well as residues from corn processing and wine production. Clearly, this plant will expand biomass opportunities to a broad array of industries and agricultural commodities, which will be beneficial to other parts of the state as well as other regions of the country.

Mr. Chairman, I would like to make one final point: the City of Gridley and its partners are prepared to match, dollar-for-dollar, any funds appropriated for the construction of our proposed biomass ethanol plant. We have the resources available to match the full $5,000,000 request for fiscal year 1996.

Again, thank you for your past support and for this opportunity to testify. If you have questions regarding our proposal, I would be happy to try to answer them.

Thank you.

TUESDAY, MARCH 28, 1995.

GEOTHERMAL ENERGY

WITNESS

PHILLIP MICHAEL WRIGHT, PRESIDENT, GEOTHERMAL ENERGY ASSOCIATION

Mr. MYERS. Next is Dr. Phillip Michael Wright, President of the Geothermal Energy Association. We are pleased to have you today. Your prepared statement will be placed in the record and you may continue up to five minutes as you would like.

Mr. WRIGHT. Thank you, Chairman Myers, Mr. Fazio, Mr. Riggs and other members of the committee. I appreciate the opportunity to come and talk a little bit about geothermal energy today. I have some good news from our industry.

This past year, geothermal companies from the United States have signed contracts in Indonesia for development of geothermal power in the amount of roughly 1,400 megawatts, and these projects will be funded at about $3.5 billion. In addition to that, we have signed contracts for development of about 300 megawatts in the Philippines for another say $500 million and not only that, we have contracts in Nicaragua now for 105 megawatts of geothermal power.

That country is rich in geothermal power as well and that will be worth another $250 million or so. And we signed a contract in the small Caribbean Nation of Dominica for a very small power plants. They don't have much load but it is very expensive.

We appreciate the support we have had from this committee in the past years, and it has been this support that I think has allowed us to increase our technological edge to the point where we can begin winning in international competition. Our chief competitors are the Japanese and Italians, and they both have used tied aid and political intervention to get geothermal projects, and our industry has been unable to compete, and I think it is our better technology, our better know-how in the financial world and things like that are beginning to pay off for us.

A lot of this effort will be done by U.S. people working in these countries. U.S. goods will be sold in these countries and a substantial portion of the money we are talking about will come back to the United States.

Now, one of the important points I want to make is that the thing that has allowed us to make these successful marketing efforts is superior technology; and our technology has improved by 25 to 40 percent over the last decade. We believe that other improvements can be made, further improvements can be made, improvements of a further 25 to 40 percent with appropriate R&D.

Our chief concern is support for the Department of Energy's R&D budget. We cost share that budget. This year the request is something like $37 million and our industry is willing to put in a cost share of $50 million to match that. Our industry cost share has grown over the past five or six years from something like $8 million to the $50 million that we propose for this coming year.

Just a couple of weeks ago we had a meeting in San Francisco with members of the industry, and the purpose of that meeting, a one-day workshop, was to prioritize and make recommendations to the Department of Energy for R&D that we need. And we have been in contact with them and we are going to provide them written information on this.

We feel that we need help primarily in three areas, in better drilling. Drilling technology for geothermal resources is lagging behind. It is much more expensive than oil and gas and much more difficult. We also need better technology in the earth sciences, in the subsurface sciences, for mapping geothermal systems, better ways to use geothermal systems, better injection techniques to return water to the subsurface.

In that regard, we would like to voice our support for an experiment in California to bring water from Lake County to the geysers geothermal field. That is a very important experiment, and if it succeeds, it can be duplicated on the west side of the geysers field.

We expect to be able to increase our production there by 70 megawatts as a result of that project, and the DOE cost share is roughly $8 million over the years. Other industries are pitching in $40 million. So it is a good ratio.

We would like to have the energy conversion program supported strongly. And as far as priorities go, I think they are about 50/50/50; in other words, one-third, one-third, one-third is how we recommend the money be spent.

We would like to voice our support for continued introduction of geothermal heat pumps into the market. Heat pumps are a good deal. They save a lot of money. It is not an R&D program but a commercialization program, but very important to the United States.

I would like to make the further point that the Japanese are close on our tail. They spend $150 million a year in geothermal research and we will lose an incredible opportunity if we don't pursue that and maintain our technical superiority. With that, I will close and answer any questions that you might have.

[The statement of Mr. Wright follows:]

Phillip Michael Wright

POSITION:	- President, Geothermal Energy Association, and Senior Associate Director, Earth Sciences and Resources Institute, Department of Civil Engineering, University of Utah.
EDUCATION:	- B.S. (High Honors), Geological Engineering, 1960, University of Utah. - Ph.D., Geophysics, 1966, University of Utah.
SOCIETY AFFILIATIONS:	American Association for the Advancement of Science, American Association of Petroleum Geologists, American Geophysical Union, Society of Exploration Geophysicists, Society of Economic Geologists, International Geothermal Association, Geothermal Resources Council, Utah Geological Association

PROFESSIONAL EXPERIENCE:

1\94-present	**President, Geothermal Energy Association**
12\94-present	**Senior Associate Director, ESRI**
8\85-12\94	**Technical Vice President, University of Utah Research Institute.**
5\84-12\94	**Director, Earth Science Laboratory, UURI.**
9/78-5/84	**Associate Director, Earth Science Laboratory, UURI.**
5/77-9/78	**Senior Geophysicist/Project Manager, Earth Science Laboratory, UURI.**
1969-5/77	**Chief, Geophysics Division - U.S. Operations, Kennecott Exploration, Inc., Salt Lake City, Utah.**

RESEARCH INTERESTS:

- Geothermal energy, its nature, occurrence and economic development.
- Electrical tomography of the Earth's subsurface using borehole-to-borehole, borehole-to-surface and surface-to-borehole geophysical surveys, and application to environmental and resource exploration problems.
- Integrated interpretation of geological, geophysical and geochemical data sets for subsurface exploration, especially for geothermal, mineral and environmental applications.
- Application of airborne and satellite remote sensing to geothermal, mineral and environmental studies.
- 62 publications, 50 technical reports, chapters in 2 books.

GEOTHERMAL ENERGY R&D INVESTMENT FOR AMERICA'S FUTURE

Statement of the
GEOTHERMAL ENERGY ASSOCIATION

Prepared By:
Dr. Phillip Michael Wright
President

Action Requested: Support the FY 1996 DOE Geothermal Division budget at $37.8 Million.

Mr. Chairman and members of the Subcommittee, my name is Dr. Phillip Michael Wright, and I am President of the Geothermal Energy Association. I am speaking today on behalf of my Association, which is comprised of about 50 U.S. member companies that bring the benefits of clean, reliable geothermal energy to society.

I have the pleasure of reporting to you that our industry is beginning to achieve dramatic breakthroughs in marketing geothermal technology in a number of developing countries -- breakthroughs that will have a highly positive effect on the U.S. economy, trade balance, employment, and on the global environment. Last November, four U.S. geothermal companies signed agreements with the Government of Indonesia for the development of 1,420 megawatts of geothermal electrical power generation in separate concession areas -- agreements that will lead to projects funded at about $4 billion. In addition, $500 million in project contracts have recently been signed in the Philippines for development of 300 megawatts of new geothermal power. The vibrant economies in these nations recognize the many benefits geothermal energy development can bring to them, and additional opportunity for further geothermal power development exists. In addition to these successes, another U.S. geothermal company has, within just the last few weeks, signed an agreement with the Government of Nicaragua to develop 105 megawatts of geothermal electrical power, an agreement worth about $250 million. Also, an agreement for construction of a small, 5 megawatt, geothermal power plant was recently signed with the Caribbean nation of Dominica. *The total U.S. industry's commitment to development of geothermal electricity generation in emerging nations now stands at nearly 2,000 megawatts of new power, in addition to the 1,200 megawatts already operating as a result of projects in foreign countries by our industry.* To place these figures in perspective, the average U.S. nuclear plant produces about 950 megawatts, and serves the residential needs of 1,000,000 Americans. Because geothermal power plants operate with a high capacity factor (actual megawatt-hours of electricity produced per megawatt of installed capacity), this means that more actual energy will be brought into these economies than would be produced by virtually any other type of power plant.

These achievements by our industry have been made possible in part through the support of the Energy and Water Development Appropriations Subcommittee, and we are very grateful for this support. I know that sometimes people in government wonder whether or not Federal funds have a beneficial effect on our society and economy. The figures cited above provide measures of the results of the geothermal program. Clearly, the investment this committee has made in geothermal technology development has helped advance our industry in international competition, to the benefit of all Americans. It has been a wise investment.

I want to emphasize the important point that *these marketing successes in international competition are a direct result of the superior technology the U.S. geothermal industry has been developing in partnership and close cooperation with the Department of Energy.* Until recently, international markets were dominated by Italian and Japanese companies supported by their governments with low-interest financing, tied aid, and political intervention to win geothermal projects. Our competitors' successes in actually bringing power on line, however, have been quite limited. The high quality of our industry's goods and services, our proven track record of reliable power development in this country, and our superior business and financial know-how appear to be overcoming the unfair advantages our competitors have had. The potential for much more geothermal development in emerging nations is very good. Our industry wants to remain poised to take advantage of further opportunities as they arise.

A second important point I want to emphasize today is that *our industry's growth is not limited by geothermal resource availability. Rather, it is limited by inadequate technology.* Only the very highest grade geothermal resources can be economically used today. Development of the vast majority of geothermal resources is not possible because our power generation costs are higher than those for competing fossil fuels, especially natural gas. Our costs today range from 4 to 7 cents per kilowatt-hour at high-grade geothermal resource sites, whereas generation from natural gas costs 3 to 5 cents per kilowatt-hour. Geothermal generation costs at the much more plentiful lower-grade resource sites are absolutely unable to compete with natural-gas generation costs. *A core R&D program aimed at improving existing technology and developing new, advanced technology is critical to help us continue competing in the global energy marketplace.* There are well-funded R&D programs in Japan, Italy, England, Germany and France aimed at advancing their technology beyond our own. Continued and even accelerated efforts to improve U.S. technology are extremely important for the short-range and long-range survival of our industry. For this reason, my association strongly endorses and supports the geothermal R&D program in the Department of Energy.

The member companies of the Geothermal Energy Association respectfully request your Committee to resist cutting DOE's very important geothermal research effort, but instead to continue support during FY 1996 at the present level of $37.8 million. We will match such an amount with a cost share of $50 million from the geothermal industry. Industry's cost share has grown from $8 million in FY 1993 to the $50 million proposed for FY 1996. We understand your need to reduce federal spending to decrease our country's budget deficit, and applaud your efforts to do so. However, we would like to point out that *royalty and other production payments for geothermal-energy usage on Federal lands brings about $30 million per year into the U.S. government, and nearly pays for the entire Federal geothermal R&D program.* With continued growth, our industry could generate royalties of $100 million per year or more within a decade, since the majority of the resource occurs on Federal lands. Furthermore, the geothermal R&D budget has *not* participated in the very rapid increases in the overall renewables budget during the last several years. Whereas the overall renewables budget in DOE increased from $201.2 million to $389.4 million between FY 1991 and FY 1995 (essentially doubling), the geothermal R&D budget increased only from $29.9 million to $37.2 million (only 24%). If cutbacks were to be uniformly applied to the renewables, the geothermal R&D budget would be totally devastated and most of the industry cost share would be lost. We urge you not to let this happen to an industry that is so important to America by clearly stating in legislation your support for geothermal energy development.

One other important recommendation for the geothermal R&D budget must be mentioned in this statement. A DOE facility known as the Energy Technology Engineering Center (ETEC) has been placed under the geothermal budget even though this center has no geothermal activities. Money to fund

ETEC in the FY 1996 budget is proposed by the DOE to be taken from geothermal programs that are important to the Geothermal Energy Association. The geothermal industry feels strongly that, if the Department of Energy wants to keep ETEC open and operational, the funding should come from some other budget such as that for nuclear or fossil energy, both of which have recently had programs at the ETEC facility. The legitimate geothermal R&D programs slated to be displaced by the proposed ETEC funds are cost-shared by our industry, with substantial overall benefit to our country. *We strongly urge that the programs proposed by DOE to be curtailed in order to fund the ETEC facility should be reinstated and the ETEC facility should be maintained using a funding source other than the geothermal budget, one matched to ETEC's actual mission and capabilities.*

TECHNOLOGY NEEDS

Just two weeks ago, the Geothermal Energy Association held a one-day workshop, for industry representatives only, to discuss the DOE geothermal program and recommend priority research areas. We concluded that the DOE program should concentrate in three program areas to help us reduce costs -- drilling, earth sciences, and energy-conversion.

> *Drilling*. Drilling is one of the most expensive activities in geothermal development. Because of the high temperatures and corrosive nature of geothermal fluids, geothermal drilling is much more difficult and expensive than conventional oil and gas drilling. Each well costs $1 million to $3 million, and an average geothermal field consists of 20 to 100 or more wells. Drilling costs account for one-third to one-half of the total costs for a geothermal project. Improvement in existing drilling techniques and development of new, advanced drilling techniques would significantly lower the cost of electricity generated from geothermal resources. The GEA estimates that drilling costs can be lowered by 10 - 20% in the short term (the next decade) through incremental improvements to existing technology, and by 30 - 50% through development of advanced techniques such as those proposed in DOE's National Advanced Drilling and Excavation Technologies program.
>
> *Earth Sciences*. Improvements in subsurface exploration and remote-sensing techniques are badly needed to allow resources to be discovered and assessed better. Present techniques lead us to drill too many dry wells. Further, inadequate knowledge of the subsurface makes it impossible for us to mine the heat in the most efficient way and ensure the sustainability of production from geothermal resources. We need better geological, geochemical, and geophysical techniques, as well as improved methods of computer simulation of heat-extraction strategies from geothermal reservoirs. Lowering geothermal development costs by 10 - 20% is possible through more reliable earth science techniques. We also need large-scale field tests such as the injection experiment currently being conducted at The Geysers field in California. Water will be brought into the field for injection from the Lake County waste water treatment plant, which is looking for a means of disposal. We anticipate that this project will increase generation at The Geysers field by 70 megawatts or more. The Federal investment will be about $8 million over several years, and the total project cost will be about $40 million.
>
> *Energy Conversion*. The efficiency in conversion of geothermal steam into electricity in the power plant directly affects the cost of power generation. During the past decade, the efficiency of dry- and flash-steam geothermal power plants was improved by 25%. Power plants installed at The Geysers geothermal field in California during the 1960s required 20 lbs of steam to

> produce 1 kilowatt-hour of electricity. The newest plants at The Geysers, installed in the mid and late 1980s, require only 14.5 lbs of steam to produce that same kilowatt-hour of electricity. The GEA believes that geothermal power-plant efficiency can be improved at least 25% more over the next decade with a modest investment in R&D.

Our recommended R&D program is a very specific program, focussed in only three technical areas and designed to meet the needs of the industry in the most cost-effective way possible. We are working directly with the DOE to make them aware of these recommendations. We also want to mention our support for the geothermal heat pump initiative in the DOE, which is not an R&D program but which will lead to the installation of energy-efficient geothermal heat pumps throughout the country.

INDUSTRY STATUS

The geothermal industry is comprised of some 50, mostly small companies headquartered in various states, including California, Nebraska, Nevada, Florida, Maryland, Utah, Hawaii, and Oregon. Direct employment is about 10,000 people in the U.S., and our indirect effect is a minimum of 20,000 other jobs. We generate a total of 2,280 megawatts of geothermal power, producing 17 billion kilowatt-hours/year, in four states -- Hawaii, California, Nevada, and Utah. States having excellent potential for near-term development of geothermal power include New Mexico, Arizona, Oregon, Washington, Idaho, and Alaska. Geothermal energy is the second largest grid-connected renewable electricity source, after hydropower. We generate 17 times more power than solar energy and 7 times more than wind energy. The power we produce in the United States displaces the emissions of 22 million tons of carbon dioxide, 200,000 tons of sulfur dioxide, 80,000 tons of nitrogen oxides, and 100,000 tons of particulate emissions (whose adverse health effects are becoming more widely known) per year compared with the production of the same amount of electricity from an average U.S. coal-fired plant.

As we all know, significant regulatory changes are underway in the electric utility industry as a result of the Energy Policy Act of 1992 and other factors. Utilities and their customers are becoming ever more strongly motivated solely by short-term economics. In addition, natural gas prices have been very low in recent years. Tradition, regulation, and subsidies have favored the use of fossil fuels for electric power generation in the country for decades. Because geothermal energy is not yet at the point of being able to compete in such a biased situation, the environmental, fuel-diversity and energy-security advantages of this clean, reliable energy source are at risk of being lost. Not only that, but the survival of the planning and bidding process as carried out by such states as California is in doubt due to recent actions by the Federal Energy Regulatory Commission. In addition, the Bonneville Power Administration may rescind agreements to purchase geothermal power in the Northwest.

All of this adds up to a very troubled, stagnant domestic geothermal market. Our industry must curtail activities within U.S. borders and move offshore to survive. While foreign development results in expanded export of U.S. goods and services, opportunity to develop domestic geothermal resources is being lost along with its contribution to fuel diversity, energy security, and environmental preservation. It is obvious to us that we must lower the costs of geothermal power production to be able to compete in the domestic market. The only way we see for lowering our costs is with better technology.

COST-BENEFIT OF GEOTHERMAL R&D

Highly successful programs have been and are now being carried out by DOE's Geothermal Division, working with our industry. Partly as a result of Federal investment in research, the cost of generating power from geothermal resources has decreased by about 25% over the past two decades. Federal programs have provided seed money that has spawned much greater investment by our industry on its own. For example, nearly 20 years ago, the DOE invested $10 million to support research on methods to handle the highly saline geothermal brines from the Salton Sea field in the Imperial Valley of California. Brines from this field are 10 times saltier than the ocean, and are highly corrosive. That modest government investment provided the technology base for our industry to develop advanced power-plant designs. When industry-funded prototypes were successful, we went on to provide $700 million of our own money in developing the 240 megawatts of generation in operation today at the Salton Sea field. As a continuing benefit of this initial, very modest $10 million Federal investment in R&D, the operators of the Salton Sea geothermal field, California Energy Company, have been contacted by the Government of Djibouti about the feasibility of power generation from the high-salinity brine fields in that African country. No other nation presently has the technology ours does for using these brines.

The United States is being challenged today on many fronts in the arena of international competitiveness. The time-proven way to address this challenge is with superior technology. Basic and applied R&D are essential to reduce the technical and financial risks of new technology to a level that is acceptable to the private sector and its financial backers. Few emerging, financially marginal industries are able to undertake these costs totally on their own. Our industry is far smaller than the oil, gas, coal or nuclear industries, and has not had the benefit of decades of Federal and private-sector R&D that they have had. The geothermal industry faces challenges from Japan, Italy and other countries for technological superiority. At the present time, the Government of Japan spends about $150 million annually on geothermal R&D and cost-sharing with their industry. Japanese geothermal turbine-generators, a major capital component of a geothermal power plant, dominate the market now, and the Japanese government has stated its intention to take leadership in all geothermal technologies. Given the availability of an estimated 80,000 megawatts of geothermal power that could be developed in emerging nations in the next 20 years, and the World Bank's recent estimate of the need for an investment of $100 billion for electrical power generation in those nations, the potential cost/benefit ratio of developing technological superiority in geothermal energy is evident. We must rise to this challenge -- this is an opportunity America can not afford to lose.

If today's technology is "frozen in" through curtailment of our R&D program, (1) the Japanese and Italians will quickly surpass our technological edge, (2) geothermal development will stop in the U.S., and (3) our society will lose geothermal energy's benefits of fuel diversity, enhanced energy security and a cleaner environment. With the modest R&D program we propose, the cost of generating electricity from geothermal resources could be lowered by perhaps 40% over the next decade. The R&D projects in DOE's budget will provide a technology base for further investment by the industry of hundreds of millions of additional dollars and result in thousands of megawatts of new environmentally sound geothermal power generation and installation of energy-saving direct heat applications such as geothermal heat pumps. These R&D projects will have the ultimate effect of bringing 10,000 megawatts more on line in the U.S., and 40,000 megawatts more on line in developing nations. The value of such development to the U.S. economy would be an estimated $30 billion in direct sales of equipment and services.

Mr. MYERS. Vic.

Mr. FAZIO. No, thank you, Mr. Chairman.

Mr. MYERS. Frank.

Mr. RIGGS. Mr. Chairman, let me thank Dr. Wright for mentioning the possibility of ETEC, which would benefit, obviously, not only energy users in my district but throughout northern California, and also benefit, I believe, Mr. Fazio's district.

Let me ask Dr. Wright quickly, you say that the project which you label a field test being conducted currently at The Geysers might produce some added benefits; that there might be application or a project that could be developed on the west side. Could you briefly elaborate on that?

Mr. WRIGHT. In brief, the problem is that we have been mining the water out of that field. So the production has been going down. We need to introduce more water. Thermal energy in that system is very, very large. Equivalent to several tens of billions of tons of coal. And so in Lake County on the east side of the field what we are doing is building a pipeline to bring water up into The Geysers field, and we now have in advance of that we now have a cost shared experiment going on to inject available water so that when the new water from the pipeline gets there, we will know what to do with that. Now, if this whole thing works like we think it will, it will increase the production by something like 70 megawatts. Perhaps more.

Now, there is a lot of water available in Santa Rosa on the west side of The Geysers field that could be also brought up to The Geysers. There is even more than from Lake County. So if the first experiment looks good, and every indication is that it will, we would certainly recommend then a duplication of that project on the other side.

Mr. RIGGS. Thank you.

Mr. MYERS. Thank you.

TUESDAY, MARCH 28, 1995.

PHOTOVOLTAICS

WITNESS

EDWARD SABISKY, ENERGY PHOTOVOLTAICS, INC.

Mr. MYERS. Dr. Edward Sabisky, the Energy Photovoltaics Incorporated.

Dr. Sabisky, your entire statement will be placed in the record.

Mr. SABISKY. Mr. Chairman and members of the subcommittee, thank you for the opportunity to appear before you to testify on behalf of photovoltaics energy.

Energy Photovoltaics is a small company located near Princeton, New Jersey. Photovoltaics, as many of you know and have heard, is the direct conversion of sunlight into electricity. The photovoltaic effect has been known for a very long time, and photovoltaic cells have been used to power orbiting satellites since the 1950s. However, the main impediment to the widespread utilization of photovoltaics for large scale terrestrial uses is the rather large but shrinking cost differential with that of conventional methods for generating electricity. In other words, it is cost, it is cost, it is cost.

Support by this subcommittee over the past years has resulted in a remarkable reduction in module prices by more than an order of magnitude from $65 a watt in 1976 to somewhere around $4 a watt in 1993 in 1993 dollars. Even with this large reduction in cost, the technology needs another factor of four in the reduction of modular prices in order to approach cost parity with conventional energy options in the large utility peaking power market.

The Federal Government needs to continue its support for photovoltaics, but we think in a more cost-effective manner. The Federal funding for fiscal year 1995 was $87.5 million with the funding divided among three major categories. The three categories are: Fundamental research, at $7.5 million, or 8-and-a-half percent of the funding; advanced materials and devices at $23 million, or 26 percent of the total funding; and collector research and system development with two major programs called PVMat and PV Compact at $56 million, or 64 percent of the budget.

Mr. Chairman, EPV recommends or encourages this subcommittee to keep the 1996 funding about at the same level as the 1995 appropriations. About $87.5 million. However, the program funding allocation should be prioritized, more prioritized among the three categories to reflect today's energy environment.

In this regard, we recommend that the majority of the funding, over 50 percent, be assigned to the program category described as advanced materials and devices. In particular, the thin-film partnership program with at least 75 percent of the funds going to the private sector by way of subcontracts.

The reason for the funding allocations is that this Federal program best meets our needs in the private sector by leveraging our very scarce R&D funds in performing cutting edge cell and cell processing R&D for the purpose of advancing leading edge or frontier technology options. We feel, Mr. Chairman, this is the best and most effective way of helping industry develop processing options that offer the best hope for major cost reductions and, therefore, leading to a sustainable market which is then independent of government support.

Thank you, Mr. Chairman.

Mr. MYERS. Well, thank you, Dr. Sabisky, for your very fine testimony.

[The statement of Mr. Kiss follows:]

PHOTOVOLTAIC INDUSTRY NEEDS

TESTIMONY FOR THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT APPROPRIATION

SUBCOMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

by

ZOLTAN J. KISS

CEO

ENERGY PHOTOVOLTAICS (EPV), INC.

Princeton, NJ 08543

March 28, 1995

Washington, D.C.

We wish to thank the Chairman and members of the subcommittee for the opportunity to appear before you to testify on behalf of solar energy, in particular, on photovoltaics. It is interesting to note that it is now seventeen years since the Photovoltaic Energy Research, Development, and Demonstration Act was enacted into law on November 4, 1978. Much has changed since 1978 and over the past seventeen years in the energy industry. It is now a most appropriate time for this subcommittee to revisit the objectives and goals of this law.

Photovoltaics, as some of you may know, is the direct conversion of sunlight into electricity. The photovoltaic effect has been known for a very long time and photovoltaic cells have been used to power operating satellities since the 1950's. The main impediment to the wide spread commercialization of photovoltaic generated power for terrestrial uses is the large but shrinking cost differential compared to electricity produced by conventional methods. The wide spread usage of PV power requires the a PV device be made and sold for about $5 per square foot(a typical cost of high quality sheeting for house roof tops) and deliver at least ten watts of power under noon sunlight and lasts at least 20 years. A technological challenge comparable to many of the hi-tech products made by the more well known semiconductor industry. The challenge, in simple terms, for PV to be cost competitive requires the manufacturing of a sophisticated semiconductor device which can deliver one watt of power for the price of a 50 cent cup of coffee. If this can be done, and there are strong reasons to believe that it can, one has an environmentally-benign electrical generating source, which does not require any fuel such as gas, oil or nuclear fuel, and which can produce electricity at prices competitive with conventional energy sources. In addition, this non-conventional energy source can be built at large central station locations, as is done for standard power plants, and/or can be installed at user sites such as homes, buildings and industrial users. This means a large number of hi-tech jobs will be created by this growing industry in the next century. It also means, if US companies can remain competitive with stiff competition from European and Japanese companies who are strongly supported by there governments, a potentially very large export business to offset our balance of trade. In 1994, American based companies, Japanese companies and European companies each have about one-third of the growing world-wide PV business. As you may have noticed in the recent business news, there is very strong competition by American and foreign companies for the building of power plants in the developing countries. The electrical generation market is one of the worlds largest businesses. In the US for example, electricity usage has closely grown together with GDP over the past 30 years while non-electric energy usage has dropped by about 5 percent.

The Federal Government needs to continue to support photovoltaics but in an more cost efficient manner. The federal funding for fiscal year 1995 was $87.5 million with the funding divided among three major categories plus capital equipment. The three categories are: Fundamental Research at 8.5% of the total funding(research done at federal laboratories); Advanced Materials And Devices at 26% (Research done under subcontract to the private sector); Collector Research and System Development with two subcategories of PVMat and PV-Compact at 64%(PVMat was intended to aid in improving the manufacturing process and reducing module costs while PV-Compact is an market pull initiative, directed toward the installation of a number of PV operating systems over the next five years). Capital equipment for performing research at federal laboratories was funded at about 1.5%.

In this time of austerity, EPV proposes a fiscal year 1996 budget allocation of $87.5 million with no funds allocated for capital equipment or the same overall appropriations as for fiscal year 1995. However, program funding priorities should be changed to reflect today's energy status. In this regard, it is recommended that the majority of the funding, over $50 million, be assigned to the program category described as Advanced Materials and Devices with at least 75% of the funds going to the private sector by way of subcontracts. The reason, for the above funding allocations, is that the Advanced Materials and Devices program best meets the need of the private sector by complementing and enhancing their scarce R&D funds in performing cutting edge cell and cell processing R&D. This cutting edge R&D should be prioritized to the funding of thin-film PV technology options since it is recognized to have the best chance of significant cost reduction. The PVMat program has been ongoing since 1990 and its initial objective was sound. However, program implementation favored funds for improving currently operating manufacturing lines which produce modules, for current sales, of the mature PV option of thick-film silicon. There was minimal support for the leading edge thin-film technologies with no support for the recognized cutting edge thin-film technology of Copper-Indium-Selenide(CIS). Yet, it is accepted by the PV community that thin-films have the greatest potential for significant cost reduction. The PV-Compact program released its first request-for-proposals (RFP) in January of 1995 with announced intentions of releasing further RFP's over the next several years. This is an market pull program based upon the use of aggregate or volume purchases by users to put price pressure on PV module producers. As was stated to be the main restraint to commercialization, the major impediment to the growth of the industry is its high cost. The PV Compact program in our opinion will not achieve the desired result of significant cost reduction since the users will be buying components from existing manufacturing lines which are not capable in their present form of significantly reducing manufacturing costs over the time of the program. In any case, market oriented activities by the federal government are inappropriate and should be left to the private sector. Nevertheless,even in today's budget cutting environment, government spending in moderation for cutting edge R&D is appropriate and can pay off big.

The past seventeen years, of support by this subcommittee, has resulted in significant advances in photovoltaics. The two primary advances are: (1) a major reduction in PV module prices by more than an order of magnitude from $65/Watt in 1976 to $4/Watt in 1993 in 1993 dollars and, (2) the extensive R&D data generated imply, with a very high degree of confidence, that no fundamental technical barriers exist that would prevent PV power costs from achieving cost parity with electricity produced by conventional energy sources. The rather slow penetration into the energy market by PV is primarily due to a lack of capital. A major reason for the low levels of risk capital is caused by the electricity market being regulated. The utilities have an monopoly and have little incentive to risk investments in other than conventional energy options.

TUESDAY, MARCH 28, 1995.

PHOTOVOLTAICS

WITNESS

HARVEY FOREST, PRESIDENT AND CHIEF EXECUTIVE OFFICER, PHOTOVOLTAICS, SOLAREX

Mr. MYERS. Harvey Forest, President and Chief Executive Officer of Photovoltaics, Solarex.

Welcome back. Your prepared statement will be placed in the record and you can proceed for the next five minutes as you like.

Mr. FOREST. Thank you, Mr. Chairman. It is an honor to be here before this distinguished subcommittee today.

My name is Harvey Forest. My position is Chief Executive Officer Photovoltaics of Amoco/Enron Solar. I am responsible for Solarex, which is a business unit of Amoco/Enron Solar. The joint venture between Amoco and Enron Corporation was formed three months ago to provide a cost-effective solar alternative to conventional fuel based power generation. This is based on the technology developed by Solarex with support from the U.S. Department of Energy national solar photovoltaics R&D program. We believe the program should be commended by the Congress for helping achieve this milestone. Equally important, the program should adjust its priorities now to respond to the changes in the PV technology and industry that are threatening the taxpayers' investment in this nationally strategic asset.

My written testimony describes the ways the U.S. PV program has become effective in supporting our growth and development as a business.

Today Solarex is the largest U.S.-owned PV manufacturer in the world and number two overall employing about 400 people, mostly in the United States. Two-thirds of our sales are exported. As a result of the investments made by energy companies like Amoco and the DOE, a new industry now exists that is responding to a rapidly growing global market for off-grade power.

My testimony also describes new joint ventures between Amoco and Enron. Here I have an example of the new module, the new thin-film module we will be making in our new factory. This new technology will create a huge technology for U.S. jobs, improve the global environment, and provide electrification of developing areas throughout the world.

The joint venture between Amoco and Enron combines the competencies and resources to manage both technology and market risks that have so far prevented our industry from achieving meaningful penetration of the grid-connected markets. We have already made very competitive proposals to the DOE to build PV power plants in Nevada and California. We are also in discussions with the Indian Government for the construction of similar PV power plants.

One concern that brings me before you today is that the number of U.S.-owned PV companies is decreasing as foreign competitors buy U.S. facilities and technologies. And our major competitors are foreign-owned and the list of the owners reads like a Who's Who of corporate Europe and Japan: Siemens, British Petroleum, Deutch Aerospace, Kyocera, Canon, Sharp, Sumitomo.

The program whose budget you are considering helped us grow, but it also provided much of the technology base from which our foreign competitors have joined. The time is right for the U.S. program to end the task of creating a technology base for the global industry and begin to focus on the new task of meeting the competition for PV technology.

Our competitors have funding support from their respective governments in Europe and Japan that is double the size of the U.S. program. It is appropriate in any political framework for the government to invest with us to strengthen this competitive position of U.S.-based manufacturing in a strategic technology. Specifically, I encourage you to do the following.

One, affirm that the PV technology is a strategic asset for the United States which can grow U.S. jobs, provide exports to reduce the trade imbalance, and be a factor in the global energy environment equation. This technology has the potential to provide the lowest societal cost of available forms of energy. Two, require that the DOE expend the funds you appropriate in a way that gives absolute priority to following through on programs U.S. industry has been encouraged to plan for and cost share. Our young industry cannot afford to pick up the weight of unfulfilled contractual commitments. If necessary, sign no new R&D contracts but do not renege on those already in place.

Require that selection of R&D funding proposals, including proposals by national laboratories, be contingent on a credible commitment to commercialize the intended results if they are achieved. We have made such commitments in connection with contracts we have under PVBonus and PVMat and we are eagerly and effectively following through. We believe there is a large amount of funding for the U.S. PV program which evokes no such credible compliment to commercialization.

In conclusion, we ask you to encourage the redirection of the current U.S. PV program to partner with industry in developing the PV technology while meeting the strategic needs of the U.S. and to determine the appropriate level of funding to maintain U.S. leadership relative to competing nations.

Thank you for your time this morning. I would like to take this opportunity to invite you and the subcommittee staff to visit our facility in Frederick, Maryland, which is only one hour from here, where you can view our technology in action. I would be very happy to answer any of your questions.

Mr. MYERS. Well, thank you, Mr. Forest.

[The statement of Mr. Forest follows:]

TESTIMONY

BY

DR. HARVEY FOREST
CHIEF EXECUTIVE OFFICER
PHOTOVOLTAICS
AMOCO/ENRON SOLAR
FREDERICK, MARYLAND

BEFORE THE

HOUSE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

ON

FISCAL YEAR 1996 BUDGET RECOMMENDATIONS FOR

SOLAR ENERGY PROGRAMS

OF THE

UNITED STATES DEPARTMENT OF ENERGY

MARCH 28, 1995
WASHINGTON, D.C.

Thank you, Mr Chairman, for inviting me here today to discuss the present situation of the photovoltaic market and its future as it relates to the President's Fiscal Year 1996 budget for the U.S. Department of Energy. My name is Harvey Forest and I am the chief executive officer, Photovoltaics, of Amoco/Enron Solar (A/ES) and am responsible for Solarex which is a business unit of Amoco/Enron Solar. The joint venture between Amoco and Enron was formed three months ago to provide a cost-effective solar alternative to conventional fuel based power generation. This is based on the technology developed by Solarex with support from the U.S. Department of Energy (USDOE) national solar photovoltaics R&D program. We believe the program should be commended by the Congress for helping achieve this milestone. Equally important, the program should now adjust its priorities to reflect changes in the photovoltaics technology and industry that are threatening the taxpayers' investment in this nationally strategic asset.

Who is Solarex? A/ES, Solarex is the largest U.S. owned manufacturer of photovoltaic (PV) modules and related components, employing about 400 people, mostly in the U.S. For 22 years, A/ES, Solarex has been involved in the development of photovoltaics, which is the direct conversion of sunlight into electricity. Our market share is currently at 12% of the world PV market which is growing at a rate of about 20% per year. A/ES, Solarex markets its products through a network of 65 distributors located in 50 countries. Further, A/ES, Solarex exports two-thirds of its products. Examples of our products can be found in several environments: from an extensive telecommunications network in South Africa to coordinate recent election results, to 2,000 single-module home lighting systems in one of the most remote areas of Mexico, to right here in the Washington area where telephone call boxes along the Baltimore-Washington Parkway are powered by solar modules.

The Transition from Off-grid PV to "Energy Significant" PV: At the present time the PV business looks promising with significant growth coming from three distinct market segments: first is the growth of the traditional off-grid applications for PV such as: remote habitation (homes, lighting and water pumping), telecommunications, and battery charging; second is the increase in trade with countries such as India, Mexico and South Africa where a significant portion of the population lives in rural areas without any electricity; and, third is from grid-connected applications in developed countries such as Japan, the European Community, and the U.S.

The main driver for this growth is the fact that PV is competitive with conventional energy forms in off-grid applications, and offers the advantages of low maintenance and no generation of gaseous pollutants. Another advantage for PV is that it can be delivered independent of traditional infrastructures; this allows for rapid deployment of power in rural areas. The growth in grid-connected use of PV stems from the desire of governments and utilities to achieve a more balanced portfolio of energy sources while significantly improving the environment. The most significant grid-connected program is in Japan where PV installations can be found on land, commercial buildings, and private residences. This program is partially funded by the government and allows selling of PV electricity to the utility at the same rates utility customers pay. Similar programs exist in Germany and Switzerland. Here in the U.S., the Sacramento Municipal Utility District has installed similar types of PV systems with support from the USDOE.

In order to satisfy the growing demand for PV, A/ES, Solarex is making major investments in process development and equipment to increase production capacity. Other PV manufacturers are doing the same. The production capacity of our main facility located in Frederick, Maryland and the one located in Sydney, Australia will triple in the next few years.

Market acceptance of PV has occurred through development of the technology and the ability of the industry to manufacture systems that are reliable and competitive in a broad range of commercial applications. As an example of the reliability of PV, our crystalline power modules carry a 20 year warranty. Thanks to the patient and consistent R&D investment by the USDOE, combined with that of energy industry leaders like Amoco, a new industry now exists that is responding to a rapidly growing global market. This market features applications like telecommunications, small scale residential lighting and water pumping, and the beginning stages of electrification in economically undeveloped areas throughout the world.

Even though the off-grid PV market has sustained impressive industry growth over the past several years, the total market is much smaller in terms of annual shipments (60-70 MW) than the rating of a single fuel based power plant, of which there are thousands in the U.S. alone. The off-grid market is not a factor in the global energy/environmental equation, an equation that continues to be of great economic and strategic importance to the U.S. However, the off-grid market is important in the development of the PV technology because it is serving as the commercial conduit to the enormous potential of the grid-connected market. It is my opinion that one of the main reasons some U.S. and foreign companies have abandoned or sold their PV operations is due to the lack of commercial validation of the technology, which, in turn, is due to a lack of participation in the off-grid market.

What will it take for solar energy to be a major factor in the global energy/environmental equation and penetrate the grid-connected market? It will take technology, access to markets, major investment, and very careful management of risk, all of which are the same requirements for the off-grid market, but on a smaller scale. Technology and market access are the most important requirements. We believe that penetration of grid-connected markets is now possible based on the technology we will soon manufacture. The technology replaces the expensive materials we now use with very thin and, therefore, low cost semiconducting films that are as effective as the current materials used. Our company combines the competencies and resources to manage both technology and market risks that have so far prevented our industry from achieving meaningful penetration of grid-connected markets. Successful penetration of these markets will encourage others to follow suit, ultimately resulting in the creation of U.S. jobs, the improvement of the global environment, and the availability of electricity for developing areas throughout the world. Our vision of this future is captured in the illustration at the end of this text.

Affordable Grid-Connected Solar Energy: Over the past two decades, substantial combined public and private funds have been expended in pursuit of a singular goal, i.e. a PV technology capable of being manufactured and assembled in large power plants at life cycle, installed costs comparable with conventional power plants. It is the consensus among energy economists that the installed system cost that must be achieved for PV power plants to be competitive with fossil fuel based power plants is about $2 per watt. This goal is a factor of three to six lower than costs for typical utility/USDOE cost shared installations in recent years. We believe that this long sought after goal is within reach. More significantly, we have put our money and reputation on the line in the form of serious proposals to the USDOE to build PV power plants in Nevada and California at or below the $2 per watt cost. We are also in discussions with the Indian government for the construction of PV power plants.

The USDOE Energy Supply R&D Program: Although private sector investment in PV has accounted for the lion's share of the cumulative 20 year private/public R&D investment, the role of the USDOE program has been significant. Early on it was simply not known by what path success would be achieved The USDOE program provided the means to explore a variety of technology pathways more aggressively than would have otherwise been possible. Valuable "pre-commercial" R&D was done by USDOE laboratories, notably NREL and Sandia.

The work of these laboratories was a vital complement to the very focused efforts supported in parallel by private investment. More recently, USDOE programs have shifted a portion of their resources toward supporting cost-shared efforts with utilities and manufacturers that have accelerated the maturation of critically important "balance of system" (BOS) technologies as well as core PV manufacturing technologies BOS refers to the other components used with PV modules to create an electric generating system, and include such devices as invertors, controllers, regulators, and batteries. These government/industry collaborations, such as the Photovoltaic Utility Scale Application (PVUSA), Building Opportunities in the U.S. (PV-BONUS), PV Manufacturing Technology (PVMaT), and Technology Experience to Accelerate Markets in Utility Photovoltaics (TEAM-UP), have become the most important and most supportive portions of the USDOE program to companies like A/ES, Solarex, companies whose attention has increasingly focused on commerce vs. contract R&D.

Bringing Photovoltaics onto the Utility Grid: The importance of the above noted collaborative programs stems from the fact that they anticipated the day when PV technology would be ready for use in grid connected "utility scale" applications. As a by-product of the effort to provide utility scale applications, our fledgling industry has found ready markets for cost-effective PV in remote, off-grid applications world-wide. We did not need endless R&D support to address these markets and grow into commercially viable enterprises We did need increasingly focused USDOE R&D support to prepare for the huge opportunity of grid-connected PV.

Implications for the USDOE Program: This sub-committee is concerned with appropriations for energy research and development. Members of this subcommittee are facing the need to encourage government agencies to do more with less. As a business with strong foreign competition, we face similar challenges daily. My purpose here today is not to protect a slice of the appropriations pie that has our name on it. No such slice exists Nor is it to tell you the pie should be bigger, the same, or smaller. We want you to understand that it is not just the business of government that is changing; ours is, too. Therefore, it is critically important that the U.S. national solar PV program change as well to continue developing this national asset.

One of the concerns that brings me before you is that the number of U.S. PV manufacturers is decreasing as foreign competitors buy U S facilities and operations. In the last year there were three cases of investments by foreign competitors in the U S Our major competitors are foreign owned and the list of owners read like a who's who of corporate Europe and Japan: Siemens, British Petroleum, Deutch Aerospace, Canon, Sharp, Sanyo, Sumitomo, Kyocera. The program whose budget you are considering helped us grow It also provided much of the technology base from which our competitors have drawn It is time for this program to relinquish the task of creating a technology base for the global industry and begin to focus on a new task The new task is nothing less than meeting global competition. It is something we must do every day. Our competitors have R&D funding support from programs of the European Community and Japan. These programs are almost twice the size and scope as that of the U.S. It is appropriate in any political framework for the U.S. to invest with us in the competitive posture of U.S. based PV manufacturing. The U.S. is in danger of losing its PV technical leadership to our foreign competitors.

Re-engineering the Government/Industry Partnership in Solar Photovoltaics: Penetration of PV into grid connected markets is not a given. It is something we think we can achieve. The U S. national program can have an impact on how rapidly we are able to proceed and on the share of the global market U.S. companies are able to capture. It can do so by re-prioritizing and focusing its programs.

As for priorities, we think priority should be given to the technologies and markets that are attracting serious private sector investment Significant government resources are being devoted to technologies and markets that have yet to attract even modest levels of investment. The hope on which this allocation is based is that private investment will follow the lead of government thinking. It should be the other way around. Where there is serious private investment, government programs should seek to enhance or accelerate the targeted results.

As for focus, our technology and industry is notorious for generating dozens of ideas and technology pathways that might result someday in lower cost products, better efficiencies, interesting new applications, etc. Within the research community there is an insatiable appetite for exploring ideas. Unfortunately, achieving success on even one of the many potential technology/market pathways is very expensive. For example, the heavy focus on basic research during the 1980's resulted in increased laboratory solar cell efficiencies, while non-funded commercial solar cells lagged behind and the gap between the two widened. As a result, most of the techniques developed in these labs were not commercially viable. To some extent, our industry and, to a greater extent, the government programs that intend to support it, are caught up in a process that values diversity over near term results. This must change, and you can help encourage the change.

Another factor is the rapid globalization and growth of the PV business due to increased trade with countries that require economic development. We find there are enormous differences in trying to access markets in developing countries as compared to developed countries. Government can play a significant role to assist U.S. companies in doing business in developing countries. I am pleased to see efforts within the USDOE to shift some resources to support PV markets in developing countries such as Brazil, India, Pakistan, China, and South Africa.

Additionally, we applaud Secretary O'Leary's efforts to help U.S. companies develop business and government relationships in these important PV markets. The need for energy in developing countries, such as those in Asia, is substantial in order to sustain economic growth. Coupled with that growth is the largest increase in the rate of pollution generation in the world. Grid-connected PV can have a major impact on the energy/environment equation in Asia where the wholesale price of electricity is higher than in the U.S.

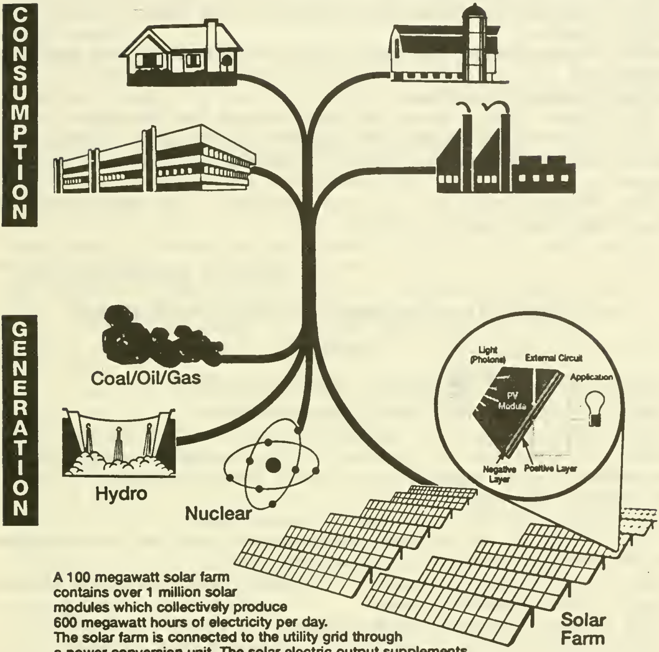
My main message today is that the PV business has changed in the last few years: the opportunity for grid-connected PV electricity is closer, the PV markets are more global and growing rapidly, and the number of U.S. PV companies is decreasing while foreign competition is increasing. Given these changes, we believe the role of the U.S. PV program must also change. I strongly urge you to consider these factors when evaluating the budget for the U.S. PV program and its importance in light of the fact that competitor's governments are spending more. However, the size of the U.S. program budget is only part of the answer since there is opportunity to redirect the U.S. program to maximize the effectiveness of the taxpayer's investment.

Specifically, we request you do the following:

1. Affirm that the PV technology is a strategic asset for the U.S., which can increase U.S. jobs, provide exports to reduce the trade imbalance, and be a factor in the global energy/environment equation. This technology has the potential to provide the lowest societal cost of available forms of energy. Since the benefits that are derived from PV go beyond the original domestic charter of the USDOE, the national solar PV program must be re-directed.
2. Require that the USDOE expend the funds you appropriate in a way that gives absolute priority to following through on programs U.S. industry has been encouraged to plan for and cost share. Our young industry does not need subsidies, but it simply cannot afford to pick up the weight of unfulfilled contractual commitments. If necessary, sign no new R&D contracts, but do not renege on those already in place.
3. Require that selection of R&D funding proposals, including proposals by national laboratories, be contingent on a credible commitment to commercialize the intended results if they are achieved. We have made such commitments in connection with contracts we have under PV:BONUS and PVMaT, and we are eagerly and effectively following through. We believe there is a large amount of funding for the U.S. PV program which evokes no such credible commitment to commercialization.

We ask you to encourage the re-direction of the current national solar PV program to partner with industry in developing the PV technology and meeting the strategic needs of the U.S. and to determine the appropriate level of funding to maintain U.S. leadership relative to competing nations.

HERE COMES THE SUN



A 100 megawatt solar farm contains over 1 million solar modules which collectively produce 600 megawatt hours of electricity per day. The solar farm is connected to the utility grid through a power conversion unit. The solar electric output supplements the local utility during the daytime, providing enough electricity to service 20,000 homes with energy from the sun.

Mr. MYERS. Is your facility what we see when we drive up the interstate at the Y there on the north side?

Mr. FOREST. That's right, the building with the strange roof.

Mr. MYERS. We have seen it for years.

Mr. FOREST. We would love to have you up there to show you what is inside.

Mr. MYERS. Would you mind about two o'clock in the morning sometime?

Mr. FOREST. No problem.

Mr. MYERS. That is about the hour we have free any more.

Mr. FOREST. That is okay. We operate three shifts. There would be no problem having you there. The people would love to see you there.

Mr. MYERS. Thank you for your testimony. The committee will stand adjourned until two o'clock.

TUESDAY, MARCH 28, 1995.

GT–MHR AND INERTIAL FUSION PROGRAMS

WITNESS

LINDEN BLUE, VICE CHAIRMAN, GENERAL ATOMICS

Mr. MYERS. The committee will come to order.

This afternoon we are pleased to welcome back Linden Blue, Chief Vice Chairman of the board of the General Atomics. Like to welcome you once again. If you have a prepared statement it will be placed in the record.

Mr. BLUE. I do, Mr. Chairman. It is over there.

Mr. MYERS. It will be part of the record, and you can continue for the next five minutes in any way you care.

Mr. BLUE. Very well. That is a big order for five minutes in this fission, fusion, and space power.

Mr. MYERS. That is across the room, isn't it?

Mr. BLUE. First of all, I think we should pose the question can we afford to bet the energy future of the world on fossil energy only? Can we afford to base it solely on coal, gas, and oil? I don't think that we can. I think that nuclear energy is the obvious other heavy lifter, if you will, in the electricity production arena. I think it is essential that we continue to have our nuclear option.

We know that world energy demands are going to probably double by the year 2020. If we only rely on fossil fuel, that puts an enormous responsibility on those sources when, in fact today, 17 percent of the world's energy comes from nuclear and I think under almost any scenario it is likely we should expect to see that continue.

Well, if you do assume that we are going to continue the reliance on nuclear energy that we just have today, roughly 17 percent worldwide, that is an awesome market for nuclear equipment. It is something on the order of 500 reactors. Because we have to double the number plus replace the number that are already out there now. That is a $30 billion a year market. Even larger than the U.S. aircraft, commercial aircraft manufacturing business. A huge market that the United States should be represented in.

Obviously, we can and we must do a better job with nuclear than we have done in the past. The helium reactor offers that capability because it is the only technology that can give us a meltdown-proof reactor, that can give us a 50-percent improvement in efficiency and all that means for cost, and a factor of four reduction of heavy metal waste.

When you consider those things, if we can give those capabilities in the nuclear world suddenly the public would say this is the kind of nuclear energy we want in the future and it is essential this research continue.

Thanks to the action of this committee, we are now able to produce twice as much energy from a single module as we were only about five years ago. Tremendous technical progress which we must continue.

I want to leave fission with that for a moment and talk about fusion energy. Fusion energy is said to be the most ambitious scientific undertaking ever done by man. That is probably true. It is also potentially the most rewarding. Enormous progress has been made. It is essential that this continue because fusion, uniquely, offers the world essentially unlimited electricity production. A tremendous potential asset for the world. It must continue in terms of priorities.

The international thermonuclear experiment, ITER, is essential because we get a four to one leverage on U.S. funding. We must have that leverage. We must have the cooperation in the international community.

Second priority, DIII–D. The foundation of all the experiments that are going on for any future tokamak devices. Third, TPX, at Princeton, an essential part and I think you will be hearing more of that from the next people who are testifying.

Finally, the inertial confinement fusion, essential in an era when we are not doing nuclear tests. It forms a foundation for our stewardship of our nuclear deterrent.

Finally, space power. We need the ability to vary our orbits. Only when we have this kind of power can we have the ability to vary our orbits and provide better reconnaissance than we have ever had before.

These are the essential elements of why all these programs must be continued. I know there is a lot of questions back here what are the priorities. And I would leave you with this final thought. We all know that the most important thing that government can do is provide security. And I would submit that without energy security, without energy availability, there can be no energy security for the world and that means no security for the world. These are the stakes. This is why these programs must be continued and must be funded at about the levels indicated in my testimony.

Thank you, Mr. Chairman.

Mr. MYERS. Well, thank you very much for a very fine testimony.

[The statement of Mr. Blue follows:]

LINDEN BLUE
VICE CHAIRMAN

OF

GENERAL ATOMICS
SAN DIEGO, CALIFORNIA

BEFORE THE

ENERGY & WATER DEVELOPMENT
SUBCOMMITTEE

OF THE

HOUSE COMMITTEE ON APPROPRIATIONS

FY-96 DOE APPROPRIATION

MARCH 28, 1995

Mr. Chairman and Committee Members:

I am Linden Blue, Vice Chairman of the Board of General Atomics (GA). I appreciate this opportunity to appear before this Committee to discuss GA's involvement in the development of three very promising advanced power systems and to provide recommendations for the FY-96 energy research and development budget. The advanced power system programs, in which GA is involved, are the Gas Turbine - Modular Helium Reactor (GT-MHR) Program, the Space Reactor Power Systems Program, and the Fusion Energy Development Program.

The GT-MHR has the potential to provide the highest safety, lowest cost, least environmental impact, and most proliferation resistant fission energy source for meeting energy needs, both domestically and internationally, starting in the first decade of the next century. The Space Reactor Power Systems Program is developing systems for converting heat directly to electricity for suppling reliable power for space applications. Fusion represents a long-range energy resource with the potential to provide a virtually inexhaustible energy supply.

I recommend the following appropriations for these programs in the FY-96 Energy R&D budget:

• Gas Turbine - Modular Helium Reactor	$ 25M
• Fusion Energy Development	
- Magnetic Fusion	$366M
- Inertial Confinement Fusion	$241M
• Space Reactor Power Systems	$ 15M

GA remains confident that the promise of each of these programs will be realized. The success of these programs will make significant contributions to satisfying future energy needs, and help maintain U.S. leadership in the supply of the world's energy generation technologies.

THE GT-MHR PROGRAM

My testimony on the GT-MHR is presented on behalf of the entire industrial team involved with the GT-MHR Program, namely, Bechtel, Allied Signal, ABB-Combustion Engineering, Stone and Webster Engineering Corporation and General Atomics.

Our electricity demand and economy have grown together over the last 20 years while non-electric energy use actually has declined. To sustain economic growth, the U.S. electricity supply must continue to increase, even with aggressive conservation and higher energy use efficiency. A relatively modest 1.5 percent annual growth rate requires about a 25 percent increase in capacity, or over 200 GWe of new generation capacity, by the year 2010. This does not include replacement of some of the existing baseload capacity in the interim period. Renewables, with the possible exception of hydro power, cannot provide significant new baseload capacity. Without the deployment of additional nuclear power, essentially all of the needed new baseload capacity would have to come from fossil fuels.

Fossil fuels will also dominate the rapidly growing electricity generation market elsewhere in the world. Worldwide electricity consumption is expected to double in the next 30 years with most of the new generation coming from the combustion of fossil fuels, primarily coal. Hence, despite the aspirations of the 1992 Rio Declaration to stabilize greenhouse gas emissions, emissions will continue to grow for decades to come. If atmospheric pollution is to be stabilized, nuclear power must play a significant role in the world's future energy supply.

The future deployment of nuclear power must address the concerns with current nuclear power. These concerns have been well documented by many experts and can be summarized as being primarily: (1) the public's perception of uncertain safety; (2) marginal economics (driven, in part, by the steps taken to ensure safety); and (3) the disposition of high level wastes. The GT-MHR is a breakthrough technology which addresses these concerns. The GT-MHR has:

- the highest safety margins of any current or proposed fission nuclear power concept;
- a highly competitive cost of electricity generation in the projected time frame of deployment;
- the least environmental impact of any fossil or nuclear electricity generation alternative;
- the most proliferation resistant fuel cycle of any nuclear fission system; and
- further technology growth and spin-off process heat applications such as H_2 production

The GT-MHR uniquely couples the high temperature capability and passive safety of the modular helium reactor with a closed Brayton cycle (gas turbine) power conversion system to generate electricity at a net thermal conversion efficiency of approximately 47%, close to a 50% improvement in efficiency over light water reactor plants. In the GT-MHR closed Brayton cycle, the reactor's helium coolant directly drives a turbine-generator for the production of electricity. This revolutionary advancement has been made possible by evolutionary technology developments during the last decade in large industrial gas turbines; large active magnetic bearings; compact, highly effective plate-fin heat exchangers; and high-strength, high temperature steel alloy vessels. No other existing or advanced nuclear fission power system has the capability to use a gas turbine power conversion system and achieve the high efficiency of the GT-MHR.

The inherent characteristics of the modular helium reactor, which include ceramic coated fuel, helium coolant, graphite moderator, and a unique low power density core design, are combined to produce unparalleled safety. The nuclear reaction shuts itself down at temperatures higher than normal operating temperatures. In the event of a complete loss of coolant event, decay heat is passively removed. The bottom line is, the modular helium reactor is melt-down proof.

Passive safety, power conversion system simplicity, high thermal efficiency, and modular design result in low capital and production costs. The busbar generation costs for a mature four unit GT-MHR commercial plant is projected to be approximately 25% lower than the contemporary advanced fossil-fueled (clean coal and natural gas) alternatives. The GT-MHR's high efficiency also reduces thermal discharges and reduces high-level wastes. The GT-MHR thermal discharge is approximately 50% less and its actinide production is approximately 60% lower than advanced light water reactor plants per unit of electricity generated. In addition to producing lesser quantities of plutonium, no reprocessing capability exists in the world for extracting the plutonium from spent MHR fuel, making the GT-MHR fuel cycle more proliferation resistant than current nuclear power systems.

The MHR is unique among nuclear systems in that it can provide clean, emission-free heat energy for high temperature process heat applications. The MHR has the capability of providing heat energy, without producing CO_2, at temperatures up to approximately 1000°C for process heat applications such as efficient thermochemical production of hydrogen.

The GT-MHR can resolve the proliferation risks of weapons usable plutonium in a safe, economic, and timely manner with very low environmental impact. The GT-MHR is a "deep burn" option. Without reprocessing it achieves five times greater net destruction of weapons desirable Pu-239 in a once-through fuel cycle than other fission options. Further, if combined with an accelerator driven option, over 99% of the Pu-239 can be destroyed without reprocessing or recycle. Russia has proposed a cooperative U.S./Russian program for the development of the GT-MHR for the consumption of Russian weapons plutonium. In a cooperative program with Russia, the GT-MHR development and demonstration cost to the U.S. would be about one-third the cost of a U.S. only program. Fueled with either uranium or plutonium, the GT-MHR can also satisfy our needs for a reliable tritium supply.

The potential of the GT-MHR and the incentives for its continued development are shared by the U.S. utility industry. In April, 1994 the Advanced Reactor Corporation (ARC) submitted a report to the DOE in which they noted, with regard to the GT-MHR, that *"It is strategically important to this nation to understand better whether or not this powerful potential is real, and if it represents the one of a very few credible 'breakthroughs' in longer-term electricity generation."* ARC's report on behalf of the utility industry clearly contradicts DOE's position as contained in its FY 96 Congressional Budget Request that there was a..."*continuing lack of interest in this technology by the private sector*".

Our country spearheaded the development of nuclear power which created tens of thousands of high-quality jobs, stimulated interest in science and technology, contributed to the development of our scientific institutions, and promoted trade and export. Further, the U.S. can best guide and direct international nuclear energy policy issues if technological leadership is obvious and recognized. Development of advanced nuclear power by the U.S. is needed to maintain technological leadership. Because of international interest, if the U.S. does not complete development of high temperature gas cooled reactor technology, another country will assume leadership of this technology.

In summary, the GT-MHR's high efficiency, low generation cost, low environmental impacts, superior safety, and proliferation resistance warrant that the GT-MHR be given high priority for development. The GT-MHR can make a significant contribution toward the nation's secure electric energy supply, and become a major export product for the burgeoning worldwide power markets. The recommended GT-MHR program is the completion of sufficient development to permit a decision on proceeding with a cost shared demonstration project by 1998 in general conformance with the intent of the Energy Policy Act of 1992. For this program, an FY 96 appropriation of $25 million is recommended.

MAGNETIC FUSION ENERGY

Fusion research is one of the most scientifically challenging and technologically demanding research projects that mankind has ever undertaken. GA continues to play a leadership role in this research.

Even though we know the basic principles of fusion, we have not yet attained a sustained, controlled fusion reaction on earth. The bold promises of early demonstration of fusion energy were a consequence of weak understanding of the full scientific complexity and difficulty of the task. However, with the development of improved mathematical techniques, the advances in computers and computational physics, and drawing upon various disciplines of physics, fusion researchers have made impressive progress. The present U.S. fusion program is hobbled by: (1) a lack of leadership and a strong aversion to risk within the Department of Energy; (2) a fusion community concern about sustaining livelihood and careers; and (3) a world that sees itself awash in oil and other hydrocarbons . . . no immediate need for a new energy technology. Nonetheless, fusion is truly the energy source of the future. Fusion could be an environmentally attractive, large baseload electricity producer and is the only technology currently envisioned as suitable for inter-planetary or inter-solar system space travel.

Principles for a More Effective Magnetic Fusion Research Program

- The program should have clearly stated near-term and long-term program objectives. These should take the form of deliverables whereby the Department of Energy and the Congress can clearly measure the progress and the implications of that progress.

- There should be clearly identified priorities. The largest budget item may not necessarily be the highest priority. The highest priority element should always get the necessary funding, regardless of what the total budget is on a year-by-year basis.

- Every program element should have a sunset clause that identifies objectives and a timetable. At initiation a plan for ending a program and transition into the next fusion priority element should be presented.

Program Priorities

1. International Collaboration
   The U.S. should sustain its commitment to participate in the full Engineering Design Activity, including ITER design and associated research and development. ITER represents the vehicle to demonstrate a sustained controlled fusion reaction at power levels comparable to large electric power plants. Through international cost sharing, ITER provides a large leverage in the U.S. fusion budget.

2. Advanced Tokamak Physics
   The DIII-D tokamak facility has the inherent capability to test most of the physics and scientific concepts currently considered to have the greatest leverage in understanding and improving the confinement of reactor grade plasmas, thus leading to smaller and more efficient magnetic fusion energy systems. These scientific concepts can be explored with the upgrade of the device heating, control, divertor, and scientific diagnostic capabilities. The DIII-D facility is becoming an international user facility with scientific personnel from U.S. and foreign laboratories and universities conducting experiments. By implementing an aggressive upgrade program now, the scientific objectives of the GA DIII-D fusion program can be completed by the end of the century, and the operating funds can then be redirected to other U.S. fusion research activities.

3. A Steady-State Tokamak
   At present the U.S. is designing the Tokamak Physics Experiment (TPX), a research facility to explore the science of plasma interactions and the physics of steady-state plasmas. This facility will provide scientific information that would have a bearing on the design of post ITER fusion experiments. It also has the attraction of establishing a U.S. research facility of current technology that would be available to the U.S. fusion scientists early in the 21st Century. In the absence of such a capability, the U.S. will have no state-of-the-art fusion research facility available to the U.S. scientists and engineers after 2000.

4. Concept Improvement
   The Alcator-C Mod at MIT provides concept improvement through divertor physics and current drive and should be continued. In addition, the development of the driver technology required to explore inertial confinement fusion as an energy option is an important candidate as an "alternative" to the tokamak fusion energy concept.

Because of its long term nature and enormous potential payoff, fusion energy research is one of the most appropriate scientific and energy research endeavors our federal government should be funding. To meet these principles and program priorities, we request that the Congress support the full President's request of $366M for Magnetic Fusion Energy research for fiscal year 1996.

INERTIAL CONFINEMENT FUSION

I urge the Committee to continue to support the Inertial Confinement Fusion (ICF) program. This technology is important for the DOE Defense Program's Science-Based Stockpile Stewardship activity which is developing the information and capability necessary to maintain a nuclear deterrence capability without nuclear testing. GA provides ICF targets and technical support to the three weapons laboratories, Livermore, Los Alamos, and Sandia, and to the University of Rochester and the Naval Research Laboratory. We also believe that the National Ignition Facility is the appropriate next step for the Inertial Confinement Fusion program. This project will demonstrate the physics of ignition, define the path to high gain operation, and establish the capability to meet the Defense Program's needs for stockpile stewardship in the absence of underground testing. GA requests that the Committee fully support the President's request of $241M for the Inertial Confinement Fusion program and the National Ignition Facility construction for fiscal year 1996.

SPACE REACTOR POWER SYSTEMS PROGRAM

The DOE budget for space reactor power technology programs in FY-95 is only $1.5 million, and we understand it will be zero in FY-96. U.S. industrial capability in these technologies is rapidly disappearing, and when lost the time and cost to recover this capability will be large. A continuing DOE space reactor technology program will provide technology for terrestrial as well as space programs, and for solar energy systems as well as nuclear systems. Specifically, there are five ongoing government programs that will be adversely affected by the elimination of the DOE technology program:

1) Air Force Phillips Laboratory: Bi-modal space power program.
2) Air Force Wright Laboratory: Remote terrestrial site power systems.
3) Defense Nuclear Agency: Evaluation of the Russian TOPAZ system
4) Navy: Underwater applications.
5) NASA: Advanced radioisotope systems.

The Phillips Laboratory bimodal program, initially based on solar energy, will provide a system for changing orbit, for powering satellite operations, and for repositioning a satellite in response to various global conflicts. Advanced power systems for remote sites are being developed at Wright Laboratory to reduce cost and improve capability. The Defense Nuclear Agency has purchased six Russian TOPAZ space reactor systems for technology evaluation, to reduce the cost and schedule of future U.S. programs. The Navy is studying advanced propulsion systems for underwater applications systems. Finally, a continuing DOE technology program is essential to NASA's interest in advanced power systems to enable low cost exploration missions.

Our national security will be adversely affected if our industrial capability in space reactor power technologies is lost. Abdication of leadership in this field will leave the future to the Russians working with the Chinese and Japanese. We will not only lose our ability to influence developments world wide, but we will not have the technology when we might need it in this country. A budget of $15 million for a continuing DOE program in space reactor technology is recommended for FY-96.

Mr. MYERS. Mr. Bevill.

Mr. BEVILL. Thank you, Mr. Chairman.

Linden, thank you for your very fine presentation. It occurred to me that with fusion, we have been on it for 35 years now, and certainly we know it is a good program, and with all the tightening up and the fact that the amount of it automatically makes it one that we have to expect cuts. With your international experience, I know your company has participated in international programs, what, in your judgment would be the chances of getting more participation with the other countries in this time of cuts where everything seems to be on the table. Sometimes I think we are about to overdo it, but what is your thinking on that?

Mr. BLUE. I think that the international community looks to the United States for leadership. But I was just looking at some numbers a few minutes ago for 1993. The total worldwide was about $1.3 billion in funding. And the U.S. part was $360 million, roughly. So that is nearly a factor of leverage of four for every dollar the U.S. puts in, roughly four comes in totally in the funding. That is pretty darned good leverage.

The cooperation that has gone on in the fusion world is exemplary in terms of what international science should do. All of the data gained in Europe or in Japan or in Russia or the U.S., it is all shared. And it all builds and you can see the succession. One minute the U.S. will be leading, next it will be Europe, but everybody is building on each other's technology. That is the way it should be. And I think that if we can continue the present levels of funding, that will be a signal to the rest of the international community that they must do the same, and I think you will see the same kind of leverage continue in the future. That is the way to make progress.

Mr. BEVILL. Thank you.

Mr. MYERS. Thank you for joining us today, too.

Mr. CAREY. Thank you very much, Mr. Chairman.

Mr. MYERS. Thank you very much for your fine testimony.

TUESDAY, MARCH 28, 1995.

FUSION ENERGY PROGRAM

WITNESS

DR. RONALD C. DAVIDSON, DIRECTOR, PLASMA PHYSICS LABORATORY, PRINCETON UNIVERSITY

Mr. MYERS. Dr. Ronald Davidson, Director of the Plasma Physics Lab at Princeton.

Dr. Davidson, pleased to have you back. Your prepared statement will be placed in the record and you can proceed for the next five minutes as you like.

Mr. DAVIDSON. Thank you, sir.

Chairman Myers, members of the committee, I thank you for the opportunity to testify before this committee on behalf of the Princeton Plasma Physics Laboratory and in support of a strong national effort to develop fusion energy.

Last year at this time I thanked you for providing us with the resources and encouragement to carry out experiments with deuterium-tritium plasmas on the tokamak fusion test reactor. I am pleased to report that these experiments are under way and are very successful.

Since we began experimental operation in 1982, TFTR had operated with plasmas comprised of deuterium. The world's first experiments utilizing 50-50 mixture of deuterium-tritium plasma began in December 1993. In addition to achieving world record levels of up to 10.7 million watts of fusion power in November of 1994, these experiments are providing crucial information on the behavior of alpha particles produced in the deuterium-tritium fusion process. Results to date are very encouraging and bode well for the proposed tokamak physics experiments and the international thermonuclear experimental reactor.

With these historic experiments on TFTR, I believe that the development of fusion energy has moved into a new era. The U.S. investment in fusion research, about $366 million a year, in the fiscal 1996 budget request is substantial, but as pointed out by the previous speaker, it is small in comparison with the importance of a secure and environmentally acceptable energy future.

Now is the time to proceed with the other essential steps to achieve practical fusion energy. The steps include the Tokamak Physics Experiment, which is a national facility to demonstrate continuous operation and efficient energy confinement at high plasma pressures, and the International Thermonuclear Experimental Reactor, a device to demonstrate controlled ignition and burn at high fusion power and the integration and testing of engineering systems.

The Tokamak Physics Experiment is a critical step in the domestic fusion program because it will address key physics and engineering issues that will lead to more compact and economical commercial fusion power sources. TPX is organized as a national project with more than 30 universities, national laboratories, and U.S. industries involved in developing the design and carrying out detailed technical and management assessments.

Following completion of the experiments on TFTR, the TPX device will be the premium year fusion facility in the U.S. domestic program. It will be operated as a national facility and will make effective use of the significant site credits associated with the TFTR facility at the Princeton sites.

Extensive reviews of the TPX project indicate that now is the time to proceed with construction. The project is technically ready and key elements of the national team are in place. The Tokamak Physics Experiment is a smart step for the U.S. fusion program and we should get on with the job.

Let me say a few words about supporting science and technology programs. The design and construction of TPX and ITER benefits significantly from results on midsized tokamak experiments such as the DIII–D device at General Atomics, PBX–M at the Princeton Plasma Physics Laboratory, and Alcator-C Mod at the Institute of Technology. These devices are testing important concepts at short pulse lengths that improve tokamak performance and they are developing advanced diverter configurations that withstand high heat fluxes.

The R&D record of the fusion scientists and engineers at our Nation's universities, laboratories, and industries is outstanding. A sustained national effort in the science and technology of fusion is essential to attract and train a new generation of skilled fusion scientists and engineers to carry out fusion energy development during the next decades and to develop innovative concepts that will lead to optimum fusion power sources.

In conclusion, let me thank you for your support of the fusion program over the years. I strongly recommend a renewed national commitment to the development of fusion energy and urge you to support the Administration's fiscal 1996 budget request at the full level. Such a commitment is essential to the Nation's long-term economic and energy security.

[The statement of Mr. Davidson follows:]

Statement of Ronald C. Davidson
Director, Princeton Plasma Physics Laboratory
before the
U.S. House of Representatives Committee on Appropriations
Energy and Water Development Subcommittee
March 28, 1995

Chairman Myers, Members of the Committee -- thank you for the opportunity to testify before this Committee on behalf of the Department of Energy's Princeton Plasma Physics Laboratory and in support of a strong national effort to develop fusion energy. I would also like to thank you for your sustained support for the development of magnetic fusion as one of our nation's long-term energy sources.

World Energy Circumstances

Well before the middle of the next century, the world faces an energy deficit of extraordinary proportions. The total population is expected to double by 2040, to about ten billion people. With continued industrialization of Asia, Africa and the Americas, world energy consumption is projected to triple, to thirty trillion watts, over the same period of time. This assumes large gains in efficiency of energy use. At the present rates of consumption, however, the world's known oil supply will be depleted in about sixty years, and natural gas in about one hundred years. Indeed, as noted in Brammer's recent article in Barron's, with the growing demand for oil on a world-wide basis, there is a distinct possibility that demand could exceed production in several years time, leading to an energy supply crisis that overshadows that in the early 1970s. While coal reserves could sustain some of the world's hungry appetite for energy for several centuries, the problems associated with mining and the high level of environmental pollution produced by coal-fired power plants would only aggravate an already precarious ecological balance.

Energy is fundamental to an acceptable quality of life, and the requirements of the developing world are not to be denied. By any measure, the world *must* find new sources of energy in the coming decades -- sources that will augment the inevitable increase in reliance on solar, renewables and nuclear fission. Not to do so is to sentence the United States and the rest of the world to severe deprivation. An abundant and environmentally attractive supply of energy is vital to the Nation's economic and national security.

The search for alternative energy sources has led to a highly successful international research effort to develop fusion -- the process of combining hydrogen nuclei that powers the sun and the stars -- as a practical energy source. In the fusion process, deuterium and tritium ions in a high-temperature "plasma" confined by a strong magnetic field, undergo fusion reactions and produce both inert helium ions, called alpha particles, that are trapped in the plasma, and energetic neutrons that carry away the heat from the reaction. Unlike fission, no long-lived radioactive by-products are produced in the reaction. Fusion offers the prospect of an environmentally attractive and secure long-term energy source, with a virtually unlimited fuel supply of deuterium obtained from ordinary water.

Results from the Tokamak Fusion Test Reactor

Last year at this time I appeared before this subcommittee and thanked you for providing us with the resources and encouragement to carry out experiments with deuterium-tritium plasmas on the Department of Energy's Tokamak Fusion Test Reactor (TFTR) at the Princeton Plasma Physics Laboratory. I am very pleased to report that these experiments are underway and are very successful.

Since it began experimental operation in 1982, the Tokamak Fusion Test Reactor (TFTR) had operated with plasmas comprised of deuterium. The world's first experiments utilizing 50/50 mixtures of deuterium-tritium (D-T) plasma began on TFTR in December, 1993. In addition to achieving world-record levels of up to 10.7 million watts of fusion power in November, 1994, these experiments are providing crucial information on the behavior of alpha particles produced in the deuterium-tritium fusion reactions. Results to date are very encouraging and bode well for the proposed Tokamak Physics Experiment (TPX) and International Thermonuclear Experimental Reactor (ITER). Both devices are now in the design stage. Major results from TFTR deuterium-tritium experiments include the following:

- Alpha particles have been successfully detected in the plasma core. The interaction of the alpha particles with the background plasma is being studied, and the alpha particles are found to be well behaved. Alpha particles do not drive significant plasma instabilities, nor do they accumulate in the plasma, where they would eventually quench the deuterium-tritium reactions. These results are very promising for the production of self-sustained fusion reactions in ITER, where the kinetic energy of the alpha particles must couple to the plasma and maintain its temperature.

- Neutral-beam injection and radio-frequency heating (the principal plasma heating and current-drive techniques to be employed on TPX and ITER) have been found to be effective with deuterium-tritium plasmas on TFTR.
- Higher temperatures are possible with deuterium-tritium plasmas. TFTR has produced a new world-record plasma temperature of 510 million degrees centigrade.
- The plasma energy confinement time is about 20% better with deuterium-tritium plasma than with deuterium alone. Advanced operational regimes with enhanced energy confinement and profile shaping are being studied on TFTR in support of the Tokamak Physics Experiment.
- TFTR has produced 6.4 megajoules of fusion energy per pulse, satisfying the original TFTR objective of 1 to 10 megajoules.
- Fusion power density in the core of TFTR of 2.8 million watts per-cubic-meter, have been achieved, exceeding TFTR's original goal of one million watts per-cubic-meter.
- Neutral-beam plasma heating has operated at power levels of 39.5 million watts for deuterium-tritium plasmas, exceeding TFTR's goal of 33 million watts.

With these historic experiments, I believe that the development of fusion energy has moved into a new era. The power produced in laboratory fusion experiments has increased by a factor of more than one-hundred million since construction of the Tokamak Fusion Test Reactor was authorized in the mid-1970s. We are using the deuterium-tritium fuel mixture that is likely to be used in the first generation of practical fusion power plants. The experiments not only have demonstrated the ability to produce more than ten million watts of fusion power -- a world record -- but also, and more importantly, they have allowed extensive measurements showing that the deuterium-tritium fuel mixture behaves very well. International review of these results has convinced researchers of the feasibility of fusion. Many families throughout the world have seen reports on television and in the papers about these experiments and were reminded of the promise that fusion offers our energy-threatened world. They have the sense that fusion is real, and that it works.

The TFTR project was authorized for construction in 1976 with the goal of producing 5 to 10 million watts of fusion power for about one second with deuterium-tritium fuel. This was part of a plan for fusion energy development leading to a fusion demonstration reactor. Throughout the 1980s, the budgets for fusion fell far short of the plan. This delayed the start of the deuterium-tritium experiments on TFTR and the planned engineering test reactor (now called the International Thermonuclear Experimental Reactor), the continuously operating tokamak (now called the Tokamak Physics Experiment), and the fusion demonstration reactor to follow. Nevertheless, the progress in fusion has continued steadily, albeit more slowly than if funding had been larger. I am now able to report that by the completion of the deuterium-tritium experiments on TFTR, the project will have met the goals set out when it was authorized nineteen years ago and greatly advanced the field of fusion. Most importantly, by the end of FY 1995, the experimental program on TFTR will have cost less than originally projected when TFTR began operation in 1982. The Tokamak Fusion Test Reactor project, the major project in the U.S. fusion program, has delivered on its promises, both in technical results and in cost-effectiveness.

Future Facility Requirements for Fusion Energy Development

As the fusion program was delayed in the 1980s, the world's energy circumstances continued to deteriorate. Many Americans have been lulled into a false sense of energy security by low petroleum prices, and the U.S. expenditure on R&D for all alternative energy sources has fallen to less than 1% of our annual energy costs of $450 billion. Other countries, however, view the energy picture as much more threatening than the U.S. does, and they are demonstrating their commitment to developing alternative energy sources such as fusion. Europe and Japan each spend about 40 percent more on fusion energy research than the U.S. does, and their strong commitment to fusion energy development is manifest by an impressive array of new and upgraded experimental facilities. The U.S. investment in fusion research -- about $366 million in the FY96 budget request -- is substantial, but it is small in comparison with the importance of a secure and environmentally acceptable energy future. Now is the time to proceed with the other essential steps to achieve practical fusion energy.

To achieve practical fusion energy, the basic steps have been known for more than a decade and have been reviewed and certified by numerous nationally-constituted panels of experts. Neither the basic steps nor the total cost of accomplishing them has changed significantly. They include the Tokamak Physics Experiment (TPX), a national project to investigate continuous operation and efficient energy confinement at high plasma pressures, and the International Thermonuclear Experimental Reactor (ITER), to demonstrate controlled ignition and burn at high fusion power and the integration and testing of engineering systems. A prudent U.S. investment in fusion energy demands a continued international collaboration on ITER, as well as a vigorous domestic program that will build American industrial capability for the fusion energy markets of the future.

The International Thermonuclear Experimental Reactor stands out as a model science and advanced technology project that has been successfully negotiated across international boundaries. The U.S. commitment to fusion energy is justified by the goal of the program -- the development of an alternative energy source for the next century, using a technology with profound consequences for the long-term energy and environmental security of mankind. This cooperative venture has successfully entered the stage of engineering design, but the four parties have yet to face the question of whether and where to build the project. If successful, ITER will demonstrate many of the technologies required for a commercial fusion power plant at power levels of about one billion watts, comparable to a large utility power plant.

As described below, the Tokamak Physics Experiment is a critical step in the domestic fusion program because it will address key physics and engineering issues that will lead to more compact and economical commercial fusion reactors. The TPX device is an advanced, superconducting tokamak that will demonstrate continuous operation at high power densities. Taken together, the results of TPX and ITER will provide the technical basis for an attractive electricity-producing fusion demonstration plant. The national team designing TPX is doing an outstanding job, and I urge you to support, in the strongest terms, the Administration's request to begin construction of the device in FY96.

Let me focus the remainder of my remarks on the critical role of the Tokamak Physics Experiment (TPX) in leading to an attractive fusion demonstration reactor.

Tokamak Physics Experiment

The TPX project is organized as a national project, with more than 30 universities, national laboratories and U.S. industries involved in developing the design and carrying out detailed technical and management assessments of the project. Following completion of experiments on TFTR, the TPX device will be the premier fusion facility in the U.S. domestic program. It will be operated as a national facility, and will make effective use of the significant site credits associated with the TFTR facility at the Princeton site, including the experimental cell and staging areas, power equipment, auxiliary heating systems, and diagnostic systems. As an advanced, superconducting tokamak capable of demonstrating continuous operation at high power densities, it will address critical physics and technology issues that will lead to the timely development of more compact and economical commercial fusion reactors, making the ultimate fusion power source more attractive to the world energy market

The mission of the TPX device is *complementary* to that of ITER, which will demonstrate fusion power production at power levels of about one billion watts, and focus on the qualification of various fusion technologies. Extensive reviews of the TPX project indicate that *now* is the time to proceed with TPX construction. The project is technically ready and the key elements of the national team are in place. It is critical to maintain the momentum that the project has developed. The timing of a construction start in FY96 is planned to coincide with completion of the historic experiments on the Tokamak Fusion Test Reactor so that the facilities and necessary technical expertise will be in place. Most importantly, early realization of the physics and technology objectives of TPX is essential to the timely development of more compact and economical fusion power systems, quite independent of the schedule for an engineering test reactor such as ITER. Nonetheless, contributions from TPX will greatly enhance the productiveness of ITER's testing phase.

With regard to reviews of the TPX project, I am pleased to report that the TPX design, management systems, and cost estimate have undergone numerous, rigorous and independent reviews with very favorable recommendations and endorsement of the project. These include detailed reviews by the Department of Energy's Fusion Energy Advisory Committee, the TPX Conceptual Design Review Committee, the Independent Cost Estimate Review Committee, the Energy Systems Acquisition Advisory Board, and the Management Review Committee, as well as extensive reviews by the project and by three different nationally-constituted advisory committees that meet on a quarterly basis. These advisory committees include outstanding fusion scientists, engineers and program managers from the nation's leading universities, national laboratories, and U.S. industries.

What are the mission and objectives of TPX? Simply stated, the *mission* of the Tokamak Physics Experiment is to develop the scientific basis for an economical and continuously operating tokamak fusion reactor. The *supporting objectives* of TPX are to: (a) optimize the plasma performance by advanced plasma shaping and through active control of the current profile and plasma-wall interactions; (b) achieve this optimization using techniques for noninductive current drive and profile control that are consistent with efficient, continuous operation; and (c) demonstrate the integration of optimized plasma performance and efficient continuous operation in fully equilibrated tokamak plasmas.

Let me now motivate in more detail the technical role of TPX in fusion energy development.

The key elements to performance improvement and cost reduction for a tokamak power plant are to increase the fusion power density for a fixed, confining magnetic field, and to reduce the heat loss for a fixed size device, or for a fixed capital investment. To *improve the power density and heat insulation, or confinement*, there are experimental results in present-generation tokamaks that show that the plasma shape and the current profile are important variables for improving both the confinement and the power density. These results are now achieved transiently for several-second pulses in present devices, and the superconducting TPX device is designed to show that improved confinement and power density can be sustained for times long in comparison with the timescale for all relevant physical processes. Indeed, the TPX device is designed for initial pulse lengths of 1000 seconds, with the capability for eventual continuous operation.

Plasma profile control and *enhanced plasma performance* in experiments on TPX with 1000-second pulse lengths or longer will constitute a major new frontier in fusion energy development. Current ramp-down experiments in present-generation tokamaks have shown that performance enhancement depends on the shape of the current profile. Both peaked and hollow current profiles have shown confinement enhancements. The former has a high internal inductance, and the latter has a sheared magnetic field that is favorable to transport and gives rise to improved confinement.

In addition to performance improvements, *continuous operation* of a tokamak power plant is highly desirable. The conventional tokamak approach leads to a pulsed power output, and minimizing the "off" times between power pulses and providing backup power can be expensive. Therefore, to make the tokamak operate continuously, an efficient way must be found to sustain the plasma current indefinitely -- another important objective of TPX.

The electrical current can be driven continuously in a high-temperature plasma if electromagnetic waves are used to impart momentum to the plasma electrons in the direction of the intended *current drive*. In addition, in certain operating regimes, the tokamak plasma can carry an internally-generated current, known as the "bootstrap current," which is produced by pressure gradients occurring naturally in the plasma. For example, in the short-pulse experiments on the Tokamak Fusion Test Reactor, the bootstrap current can account for up to 70-80% of the total current carried by the plasma. Therefore, an important objective of TPX in the area of continuous operation is to demonstrate the symbiotic generation, control and sustainment of the plasma current at high plasma pressure, using a combination of the internally generated bootstrap current and current drive systems using radio-frequency waves and microwaves injected into the plasma.

The development and testing of *advanced divertor concepts* for effective power handling under high-heat-flux conditions is another important objective of the TPX device. In a typical tokamak, 40% of the power deposited in the plasma is radiated broadly to the inner surfaces of the device. The balance is "diverted" to special chambers, where the power is concentrated on a small fraction of the surface surrounding the plasma. The divertor has a number of important functions -- to remove particles (including impurities like the alpha-particle ash in a reactor), to control recycling of the neutral particles, to provide a gas target that enhances local radiation and power dispersal, and to isolate the main plasma from the divertor region. The successful development of advanced divertor concepts under the very-long-pulse conditions in TPX is essential to the practical realization of a continuously operating tokamak power reactor, as well as pulsed power reactors.

Another important objective of TPX is to demonstrate *plasma control techniques* in an advanced tokamak configuration prototypical of an economical demonstration reactor. In this regard, the advanced control systems on TPX will be used to control the plasma against tendencies to displace vertically, to control its tendency to kink at high plasma pressure, and to assure that the plasma is positioned properly inside the vacuum vessel in order to maintain the antenna impedance match for the microwave systems, and to control power deposition on the surfaces.

To summarize, integrated operation and control of the advanced plasma configurations on TPX will provide unique data on continuous operation at high power densities that will lead to more compact and economical commercial fusion reactors, and provide a unique fusion physics and technology test bed for the next millennium.

The important roles of TPX *in fusion engineering and technology development* as well as *U.S. economic competitiveness* are also evident. Let me illustrate with some examples.

As the world's first *all-superconducting tokamak*, timely construction of TPX will be critical in developing and maintaining U.S. industrial capability in advanced superconducting niobium-tin magnet technology, which is also the conductor of choice for the international ITER device.

The TPX device will also have an *advanced robotic system* for remote maintenance inside the vacuum vessel. In the TPX device, the dexterous manipulators used for maintenance and repairs will move along a systems of rails permanently installed inside the vacuum vessel.

In addition, the TPX device will play a pioneering role in demonstrating the *environmental attractiveness of fusion* through the use of reduced-activation materials. In particular, the vacuum vessel in TPX together with several of the plasma facing components will be constructed of the reduced-activation material *titanium*, which has neutron-induced radioactivity levels more than a factor of ten *lower* than conventional alloys of stainless steel.

Finally, successful *engineering integration* of the superconducting magnets, the cryogenic systems, the auxiliary heating and current-drive systems, the high-heat-flux components, the particle and plasma control systems, the robotic systems for internal remote maintenance, and the plasma diagnostics and data acquisition systems, all in the advanced TPX tokamak, capable of continuous operation, will challenge the best and the brightest from U.S. universities, national laboratories and industries for the next two decades, and will *position the United States to be a world leader in the commercialization of fusion energy and in the development of fusion to its fullest potential.*

As noted earlier, the results of TPX and ITER, taken together, will provide the basis for an electricity-producing fusion demonstration reactor. However, the mission of the Tokamak Physics Experiment is complementary to that of ITER, and construction of TPX should begin *now*. The TPX project is technically ready to proceed, and the historic experiments on the Tokamak Fusion Test Reactor are nearing completion. Most importantly, *early realization of the physics and technology objectives is essential to the development of more compact and economical fusion power systems.*

Also important, U.S. industry and the scientific and engineering enterprise in the domestic fusion program *must* compete with our international counterparts from a position of strength. The Tokamak Physics Experiment is a *smart* step for the U.S. fusion program. Let's get on with the job!

Supporting Science and Technology Programs

The design and construction of TPX and ITER benefit significantly from the results of existing tokamak experiments, such as the DIII-D device at General Atomics, PBX-M at the Princeton Plasma Physics Laboratory, and Alcator C-Mod at the Massachusetts Institute of Technology. These devices are testing important concepts at short pulse lengths that improve tokamak performance and developing advanced divertor configurations that withstand high heat fluxes.

A strong national effort in the science and technology of fusion is also needed to attract and train a new generation of skilled fusion scientists and engineers to carry out fusion energy development during the next decades, and to carry out innovative research that will lead to an optimum fusion power reactor. The R&D record of our nation's fusion scientists and engineers has been outstanding at universities such as the Massachusetts Institute of Technology (MIT), the University of California at Los Angeles (UCLA), the University of California at San Diego (UCSD), the University of Texas at Austin, the University of Wisconsin and Columbia University, at national laboratories such as the Princeton Plasma Physics Laboratory (PPPL), Oak Ridge National Laboratory (ORNL), the Los Alamos National Laboratory (LANL) and the Lawrence Livermore National Laboratory (LLNL), and at industries such as General Atomics, Ebasco Division of Raytheon, Rockwell International Corporation, Babcock and Wilcox, Northrup Grumman, Everson Electric, Stone and Webster, Bechtel, Martin Marietta, McDonnell Douglas, Westinghouse, and TRW. A vigorous national infrastructure in fusion is essential for the design and construction of TPX, and for effective United States' participation in ITER.

Finally, as continued progress is made in the resolution of fusion physics and technology issues, it is essential that more effort be devoted to the development of the materials for fusion reactor structures to ensure that the full environmental potential of fusion is realized. I therefore urge support for research and development of reduced-activation materials.

Conclusions

In conclusion, let me thank you for your support of the fusion program over the years. I strongly recommend a renewed national commitment to the development of fusion energy, and urge you to support the President's FY96 budget request at the full level. Such a commitment is essential to the nation's long-term economic and energy security.

Mr. MYERS. Mr. Frelinghuysen.

Mr. FRELINGHUYSEN. Director, thank you very much on behalf of the committee for being here today and making a strong case for keeping the funding in place. Really do appreciate your being here.

Mr. DAVIDSON. Thank you, Congressman.

Mr. MYERS. Thank you, Dr. Davidson.

TUESDAY, MARCH 28, 1995.

FUSION ENERGY PROGRAM

WITNESS

DR. D. BRUCE MONTGOMERY, INTERIM DIRECTOR, PLASMA FUSION CENTER, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Mr. MYERS. Next, Dr. Bruce Montgomery, the Plasma Fusion Center at Massachusetts Institute of Technology.

Dr. Montgomery, your prepared statement will be placed in the record and you can summarize if you like for the next five minutes.

Mr. MONTGOMERY. I am here today like many of my colleagues to ask for your continued strong support, which we have had from this committee in the past.

I know that you are fully aware of the long-term nature of this program. You may be less aware of some of the near-term benefits and so I have chosen my topic today to discuss some of those near-term benefits for you.

In order for the dramatic scientific progress made over the last decade to have occurred, the fusion program had to generate a new branch of basic science, plasma science, as well as to develop major advanced technologies. And these in turn have led to far-reaching applications for which there are large current world markets.

Chief among these applications is the use of plasma processing for etching ever smaller semiconductor integrated circuits. It is interesting that plasma processing has already captured over 20 percent of the current $25 billion annual budget for chips. The Wall Street Journal last week estimated the global chip market by the year 2005, just 10 years, will reach $170 billion with a concomitant need for investment in production equipment.

Plasma spray technology is also now entering a very large marketplace for depositing uniform anticorrosion coatings on everything from the complex, like turbine blades of aircraft engines, to the simple heat reflective coatings used on all thermal pane windows.

Other major markets where fusion-spawned plasma technologies are making inroads include ultraviolet light sources for the rapid drying of all kinds of coatings and adhesives. The plasma switches that are essential for making economical flat panel displays for computers and TVs of the future, and plasma deposited diamond films for hardening tools and dies.

And I wanted to bring a few little things for you to show, and this innocuous looking block here is a piece of tungsten carbide, which is an insert that goes in cutting tools. It is the most widely used cutting tool material. It has been around since I was a young engineer. This material—the lifetime of this cutting tool can be increased a hundredfold by a simple depositing of a diamond film on the surface.

And the near-term use of this appears to be that the automobile industry is now able to contemplate the use of ultra-high strength lightweight aluminum because they can cut it fast enough with these diamond coated tools to truly use it in production.

The community is also engaged in other near-term benefit spin-offs from the fusion program. Low temperature plasma discharges, for example, are being used. It converts toxic gases to harmless by-products with the application, for example, to power plant flue gas cleanup.

We are also using high temperature arc plasmas to glassify soils, to lock away contaminants from groundwater interaction.

My second prop here is a piece of radioactive contaminated soil that has been glassified into a harmless form using, again, plasma spin-off technology.

Then there are applications that accrue from the materials developed for the confinement devices themselves. And as an example of that, I brought a piece of one of the conductors that will be used in the ITER magnets, and these conductors will initially be used to construct a test magnet being built by all the parties as an example of leverage. The U.S. is building a quarter of this test magnet, the other parties are building a quarter, to make a $100 million test magnet built to full-scale ITER conductors.

Now, the U.S. will also supply all of this sheath, the special alloy sheath you see on the outside that was developed by INCO Alloys in West Virginia specifically for this application. But I think it is interesting and typical that these developments that INCO has now found in alloy makes excellent large-scale sawmill blades for milling lumber, because the mill—the blades can be made thinner, substantially reducing the waste.

The insides of this contains the superconductors which are made by U.S. manufacturers, and one of the spin-offs of these materials, of course, is the use in magnetic resonance imaging magnets throughout the world. The CEO of a New Jersey company recently commented that more than 25,000 people a day receive a scan in his magnets supplied by his company.

Finally, we would like to comment on perhaps the most important near-term spin-off of all, which is the students that we produce. At MIT, we have 75 graduate students at the moment being trained to enter this advanced business of plasma science and advanced engineering.

Thank you, Mr. Chairman.

Mr. MYERS. Thank you, Dr. Montgomery, for a very fine statement.

[The statement of Mr. Montgomery follows:]

Statement of D. Bruce Montgomery
Associate Director
Plasma Fusion Center
Massachusetts Institute of Technology
Cambridge, MA 02139

Energy and Water Development Subcommittee on Appropriations
Hearings, March 28, 1995
Subject: Magnetic Fusion Energy Program

I am here today to urge you to support the full President's budget request for Magnetic Fusion Energy.

With continued funding at the $365 million/year requested level before the year 2000 the Fusion Program will:

(1) Fulfill the U.S. commitment to the joint U.S., European Union, Japan and Russian Federation Agreement to collaborate on the ITER design, technology R&D, and specification of the construction site requirements.

(2) Validate the physics basis used in the ITER design, and explore new operating regimes leading to improved reactor concepts..

(3) Complete the engineering design and begin construction of the TPX, a major new U.S. facility designed to explore the continuous plasma operation desirable for a fusion power plant.

(4) Demonstrate the use of at least one reduced activation structural material by building and testing engineering components for fusion devices, and working with the ITER partners complete the conceptual design of the facility required to carry out fusion neutron irradiation tests of low-activation structural materials.

(5) Complete the engineering design and begin construction of a Heavy Ion Accelerator which is the next step in an Inertial Fusion Energy program, a fusion concept different from tokamaks.

(6) Strengthen our partnership with public utility authorities, utility companies, and the fusion research community to evaluate fusion program products in terms of the ability to ultimately generate electricity and meet public acceptance.

The Fusion Program has consistently met its milestone goals in the past, as allowed within the difficult constraint of a budget which has fallen by a factor of two in the last decade.

I know that this committee is fully aware of the long term nature of the fusion research program. I am also sure you are aware of the very significant progress made in the last years, and of our vision of a future when fusion power will realize its attractive environmental and safety characteristics. You may be less aware of the near-term benefits that occur from your support of the fusion program, and it is on that facet of the program that I will focus my remarks.

In order to have made the dramatic scientific progress over the last decade as measured by the 1994 generation of 10MW of fusion power in TFTR, the fusion program has had to generate a new branch of basic science - plasma physics, and to develop major programs in advanced technology. These in turn have led to far reaching applications for which there are very large current world markets.

Chief among these applications is the use of plasma process technology for etching ever-smaller semiconductor integrated circuits. Plasma processing has already captured over 20 % of the current estimated $25 billion annual market. The Wall Street Journal (3/14/ 95) estimates the annual global chip market will reach $170 billion by the year 2005, with a concomitant need for investment in production equipment.

Plasma spray technology is now entering the very large marketplace for depositing uniform anti-corrosion coatings on a range of items from the large and complex, for example the turbine blades of aircraft engines, to the simple heat reflective coatings on thermal pane windows.

Other major markets where fusion-spawned plasma technologies are making inroads include, high power microwave systems with application to advanced radar and industrial processing; plasma ultraviolet light sources for rapid drying of special inks, coatings, and adhesives; the plasma switches essential for economical flat panel computer and TV displays; the production of thin polymer films used in the recording industry; and plasma deposited diamond films for hardening of tools and dies.

As an example of this latter process, the life time of the best tungsten-carbide cutting tools can be increased 30 to 100 times by plasma deposition of a diamond film on their surface. These tools are expected to have a major impact in enabling the broad use of ultra-high strength aluminum in the automobile industry.

We are particularly proud of this application as the films are produced by a $15 million/year spin-off company, now growing at 40 percent a year, which was founded by former members of the MIT Plasma Fusion Center.

MIT is currently engaged in other potential near term benefit research spun-off from the fusion program. Low temperature plasma discharges are being used to convert toxic gasses to harmless by products, with application to waste remediation, and to on-line power plant flue gas and chemical process waste stream clean-up. Another project will use a plasma device to convert hydrocarbon fuels directly to hydrogen for use in portable fuel cell applications.

We are also using high temperature arc plasmas to glassify solid wastes. One application converts soil contaminated with radioactive or heavy-metal waste to a form of glass which locks the contaminant away from potential interaction with ground water.

There are also near-term benefits that accrue from the materials developed for the next generation of magnetic fusion confinement devices. An example is in the superconducting conductors under development for ITER.

These conductors are to be used to in a $100 million ITER test magnet now being constructed under the terms of the present four-party ITER R&D agreement. The US will build the high magnetic field section of the magnet, the Japanese , the low field portion, and the RF and the EU, the replaceable test modules. In addition, the US will supply four kilometers of the special high-strength alloy tube used by all the parties to jacket their conductors.

This alloy was developed for this application by INCO Alloys International in West Virginia, but typical of such developments, the Company has found it an ideal alloy for the very large saw blades used by commercial saw mills. The properties of this alloy allow much thinner blades, substantially reducing cutting waste.

The superconducting strands which U.S. vendors have developed for these conductors are also used in Magnetic Resonance Imaging magnets throughout the world. The CEO of a New Jersey company manufacturing such magnets for a world market, recently commented that it was a great source of personal satisfaction to him that more than 25,000 people every day received an MRI scan in a magnet supplied by his company.

Finally, we would like to comment on perhaps the most important near-term benefit of all, namely the role which broad based scientific research programs like fusion play in our obligation to educate technically trained young people. The challenge of developing new solutions for the overwhelming energy issues of the next century continues to attract some of the best students to the fusion program. Fusion research at MIT currently supports 75 graduate students who are broadly trained in plasma science and advanced engineering to enter a technically diverse and highly competitive job market.

We strongly believe that we also have an obligation to contribute to the technical training of students in their formative years. By way of example, five of our graduates students while at the Plasma Fusion Center, founded a company to produce low cost hands-on equipment for teaching science to middle-school and high school students. The equipment and curriculum first used in the Cambridge school system, is now being distributed nationally. One of the company's supporters has been the *Boston Partners for Education* , a consortium of business leaders who recognize that it is absolutely essential for the country to have a more technically trained work force to remain competitive.

In closing, we would like to again ask that you support the full President's Budget, and that you continue what has been a strong past commitment on the part of this committee. With the requested budget we can maintain a strong domestic program, join with our international partners in a major engineering step, and provide the extended horizon research climate that is essential for a continued flow of the type of near-term benefits I have described.

TUESDAY, MARCH 28, 1995.

FUSION ENERGY PROGRAM

WITNESS

DR. JAMES F. DRAKE, PRESIDENT, UNIVERSITY FUSION ASSOCIATION

Mr. MYERS. Dr. James Drake, President of the University Fusion Association. The shoulder?

Mr. DRAKE. Shoulder.

Mr. MYERS. I had both of them done. I know what you are suffering. It is hell to sleep.

Mr. DRAKE. It is hard to sleep but I am managing. It just happened last week.

Mr. MYERS. Your prepared statement will be placed in the record and you may proceed for the next five minutes as you wish.

Mr. DRAKE. Thank you for the opportunity to express my views on the U.S. fusion program. I will try to convey why I think that the support of this program is vital to the future of our country and lay down a set of near-term priorities.

I am Professor of Physics at the University of Maryland, College Park, and President of the University Fusion Association, a group representing fusion scientists at universities around the country.

Why should you support fusion?

The U.S. presently imports about 50 percent of our yearly oil consumption at a cost of about $100 billion. The percentage of oil imported increases yearly as a result of falling reserves in the Continental U.S. The known reserves worldwide are projected to run out in 30 to 50 years. This is within the lifetime of many in this room.

The maintenance of our present standard of living will require the development of alternative methods of central power generation. Fusion is probably the only environmentally attractive long-term candidate. The development of fusion remains too long term for private industry; thus, it is appropriate for the Federal Government to support this program.

I would like to say something about accomplishments under this program.

The recent production of 10.7 million watts of fusion power in a stable, confined plasma in the TFTR experiment at Princeton Plasma Physics Laboratory is a major accomplishment of the fusion program. And it is arguably, in my opinion, a major event in the history of mankind. On the basis of these results, few would now question that the production of net fusion power in magnetically confined plasma is achievable.

The fusion energy program has historically been a high quality, broad-based research program in plasma science and technology. I think the previous speaker very eloquently discussed this. The production of fusion power in the TFTR experiment is simply one product of this foundation of knowledge and there are many, many others as discussed by the previous speaker, again. Scientists at universities have historically played a major role as a source of innovative ideas and experiments and I think this has been a key to maintaining the quality of this program.

I would like to say something about the priorities of the fusion program.

The success of the TFTR experiment has shifted the primary uncertainty in the fusion program from whether a sustained fusion reaction in a laboratory can be produced to whether the tokamak concepts can become economically viable. The near-term goals of the program should reflect this overriding issue by addressing more directly whether an economically attractive reactor can be constructed.

We recommend a two-prong strategy. The first involves a vigorous program to improve the economic viability of the tokamak concept. And the second involves continued exploration of other confinement schemes.

The proposed TPX experiment at the Princeton Plasma Physics Laboratory is designed to improve the economic viability of the tokamak by operating continuously rather than the pulse mode of normal tokamaks. This experiment should serve as the focus of the program to improve the tokamak concept with complimentary ideas explored in smaller experiments. Data from these experiments and others from around the world will facilitate the construction of a more compact reactor than is presently envisioned.

The tokamak has played a dominant role in the fusion program in recent years because the performance in these machines greatly exceeds that of other configurations. Nevertheless, a limited number of other configurations show promise and should be investigated at a modest level.

Finally, I would like to address the funding level of this program. The annual cost of the fusion program is less than 0.4 percent of the annual cost of our import oil bill and the cost of importing oil in the future will escalate to far higher levels. Thus, the investment in this program is dwarfed by the potential benefits.

The present funding level is adequate to continue the core program as it stands today and to fund construction of the TPX project. An ignition machine such as ITER must eventually be constructed prior to the realization of fusion power. However, its construction will require a ramp-up of the funding of the fusion program. Hence, substantial additional funds should not be committed to the design until a national commitment has been made to the construction phase. If such a commitment is not made, the ITER project should be deferred so that the remainder of the program is not irreparably damaged.

The attempt to fund the ITER engineering design activities on a flat budget is squeezing universities out of the program at a time when ideas from the university scientists are critically needed for improving the fusion reactor concept.

Thank you.

Mr. MYERS. Thank you, Dr. Drake, for your very fine testimony. We share your concern.

[The statement of Mr. Drake follows:]

Priorities for Fusion Energy Research
Testimony of James F. Drake
House Energy and Water Development Subcommittee

Thank you for the opportunity to express my views on the US fusion program. I will try to convey why I think that the support of this program is vital to the future of our country and lay down a set of near-term priorities.

I am a Professor of Physics at the University of Maryland, College Park, and President of the University Fusion Association, a group representing fusion scientists at around forty universities around the country.

Why Support Fusion?: The US presently imports about 50% of our yearly oil consumption at a cost of about 100 billion dollars. The percentage of oil imported increases yearly as a result of falling reserves in the continental US. The known reserves world-wide are projected to run out in 30-50 years, depending on the increased demand by China and other emerging industrial countries in the third world. This is within the lifetime of many in this room. The maintenance of our present standard of living will require the development of alternative methods of central power generation. Fusion is probably the only environmentally attractive long term candidate.

The development of fusion remains too long term for private industry. Thus, it is appropriate for the federal government to support this program.

Accomplishments: The recent production of 10.7 million watts of fusion power in a stable confined plasma in the Toroidal Fusion Test Reactor at the Princeton Plasma Physics Laboratory is a major accomplishment of the fusion program and is arguably a major event in the history of mankind. On the basis of these results few would now question that the production of net fusion power in magnetically confined plasma is achievable.

The Fusion Energy Research program has historically been a high-quality, broad-based research program in plasma science and technology. The production of fusion power in the TFTR experiment is one product of this foundation of knowledge, which has been assembled over the past three decades. There have also been a broad range of other technological products ranging from free-electron lasers, plasma surfacing techniques, and advanced computational algorithms. The concept of a centralized computing facility (the National Energy Research Supercomputer Center) in which users from around the nation can remotely access a supercomputer was a product of this program and fundamentally altered the way science is carried out worldwide.

Scientists at universities have historically played a major role as a source of innovative ideas and experiments which has been the key to maintaining the high quality of the program.

Priorities: The success of the TFTR experiment has shifted the primary uncertainty in the fusion program from whether a sustained fusion reaction in a laboratory can be produced to whether the tokamak concept can become economically viable. The near term goals of the program should reflect this overriding issue by addressing more directly whether an economically attractive reactor can be constructed. We recommend a two-pronged strategy: the first involves a vigorous program to improve the economic viability of the tokamak concept and the second involves the continued exploration of other confinement schemes.

The proposed Toroidal Plasma Experiment (TPX) experiment at the Princeton Plasma Physics Laboratory is designed to improve the economic viability of the tokamak by operating continuously rather than in the pulsed mode of normal tokamaks. This experiment will serve as the focus of the program to improve the tokamak concept with complementary ideas explored in smaller experiments. Data from these experiments and others from around the world will facilitate the construction of a more compact reactor than is presently envisioned.

The tokamak has played the dominant role in the fusion program in recent years because the performance in these machines greatly exceeds that of other confinement configurations. Nevertheless, a limited number other configurations show promise and should be investigated at a modest level.

Funding Level: The annual cost of the fusion program is less than 0.4% of the annual cost of our oil import bill and the cost of importing oil in the future will escalate to far higher levels. Thus, the investment in this program is dwarfed by the potential benefits. The present funding level is adequate to continue the core program as it stands today and to fund construction of the TPX project. An ignition machine such as ITER must eventually be constructed prior to the realization of fusion power. However, its construction will require a major ramp-up in the funding of the fusion program (at least a doubling). Hence, substantial additional funds should not be committed to the design until a national commitment has been made to the construction phase. If such a commitment is not made, the ITER project should be deferred so that the remainder of the program is not irreparably damaged. The attempt to fund the ITER Engineering Design Activities on a flat budget is squeezing Universities out of the program at a time when ideas from university scientists are critically needed for improving the fusion reactor concept.

TUESDAY, MARCH 28, 1995.

FUSION ENERGY PROGRAM

WITNESS

DR. STEWART C. PRAGER, ACTING CHAIR, DIVISION OF PLASMA PHYSICS, AMERICAN PHYSICAL SOCIETY

Mr. MYERS. Dr. Stuart Prager, Acting Chair of the Division of Plasma Physics, American Physical Society.

Dr. Prager, your prepared statement will be placed in the record and you may proceed as you like for five minutes.

Mr. PRAGER. Thank you.

I wish to express strong support for the fusion energy research program on behalf of the Division of Plasma Physics of the American Physical Society.

Plasma physics is the branch of science that is the foundation of the fusion energy program. Plasma is the state of matter which makes up stars and 99 percent of the universe. A hot plasma is the core of a fusion reactor. Thus, the development of fusion power is largely driven by the development of plasma science.

The Division of Plasma Physics of the American Physical Society represents nearly all plasma physicists in the country. I speak to you as chair of the division and as a physics professor at the University of Wisconsin.

The fusion research program is a dual benefit program. It is developing an energy source and providing fundamental science. I first comment on the broad scientific value of the fusion program which extends, as has been pointed out, somewhat well beyond the fusion application but is often overlooked in policy discussions about the fusion program.

Fusion has given birth to the new subject of plasma physics, a field of deep scientific value and vast applications. Plasmas are found throughout the universe and throughout industry. Thus, plasma physics is a paradigm of fundamental science which leads to societal benefits. The scientific value extends to astrophysics, complex systems, chaos, turbulence, scientific computing, chemistry, and materials science. The technological applications have been very well dealt with by a previous speaker, and is very vast and I will not go through all those applications.

The problem is that fundamental plasma science from which these applications eventually evolve is not supported by industry, only by government. It so happens that the DOE fusion program is the dominant supporter of plasma physics research in the United States. No other agency shoulders this burden. It is critical for the health of this basic science of plasma physics that this support be strong and stable.

Of course the most exciting application of plasma physics is fusion energy, and the need and promise of fusion energy, I believe, is well understood. The progress also has been dealt with by previous speakers. It is one of the greatest scientific challenges ever and there has been tremendous progress. The progress is well documented and has been continually praised by outside scientific review panels. In a very rough chronological sense, we are perhaps halfway to a commercial reactor.

The fusion program has two components: The core scientific research component and, the next step, large devices. The core scientific component is essential in order to resolve known scientific issues, to innovate, to evolve our fusion concept. It is the underpinning and, in a sense, the top priority component of the fusion program. It also provides the fundamental science of immediate value.

The planned large facilities in magnetic fusion are the TPX and the ITER experiments. Large facilities are essential to produce reactor-like conditions not achievable in smaller experiments. TPX will demonstrate continuous operation of a fusion system and a more economical reactor concept. It is an experiment of great scientific value.

ITER, an unprecedented international partnership will generate about a billion watts of fusion power, a major milestone in fusion research. It has been pointed out that fusion research is not inexpensive, but, on the other hand, it is small compared to, for example, our annual expenditure on energy, which is about 1,000 times the fusion annual cost.

The fusion program, as you know, has already contributed disproportionately to deficit reduction. The budget has been about halved in the past decade. Further cuts could have a devastating influence, I believe. We must develop fusion now while we still enjoy plentiful energy, before we experience energy scarcity, economic shocks or severe environmental damage. As has been pointed out again that fusion cannot be developed by industry, the pay off is to long term, it is a government responsibility equal to that of national defense.

We thus recommend you support the President's fusion budget request for 1996. The Division of Plasma Physics favors a well-balanced fusion program consisting of the primary core scientific component, the TPX experiment, the ITER experiment, and the National Ignition Facility, which is a planned new facility for the study of inertial confinement. As you know, TPX is now ready for construction and ITER is under design.

We are aware of the fiscal limitations confronting the Nation; however, the investment in this energy and basic science research is tiny compared to our current annual energy expenditures. There is little, if anything, that is more important to the upcoming generation as a secure energy source and clean environment. Thank you.

Mr. MYERS. Thank you, Dr. Prager. Thank you very much for your statement.

[The statement of Mr. Prager follows:]

FUSION ENERGY RESEARCH

Statement of
Stewart C. Prager
Chair, Division of Plasma Physics
American Physical Society

to the
House Sub-Committee on Energy and Water Development

March 28, 1995

I wish to express strong support for the U.S. fusion energy research program on behalf of the Division of Plasma Physics of the American Physical Society.* Plasma physics is the branch of science that is the foundation of the fusion energy research program. A plasma is an electrically charged gas, sometimes called the fourth state of matter; it is the matter of which stars are formed and it constitutes 99% of the universe. In addition a hot plasma is the heart of a fusion reactor. Thus, the development of fusion power is largely driven by the development of our understanding of plasmas. The Division of Plasma Physics represents essentially all plasma physicists and fusion researchers in the country. I speak to you as Chair of the Division, and as a physics professor at the University of Wisconsin.

The fusion research program is a **dual benefit** program. It is developing an energy source and providing fundamental science.

Plasma Science : The fusion program has given birth to a new branch of science - plasma physics. This field produces results of deep scientific value, and immediate and vast application. The scientific value extends to astrophysics, complex systems, chaos, turbulence, scientific computing, chemistry and materials science. The technological applications include development of new computing techniques, high power microwave sources, high power lasers, high frequency radio sources, advanced defense systems, new materials, superconducting magnets, hazardous waste removal, smaller and more powerful computer memory chips, new communication techniques, and the ability to observe dynamic processes in living cells at high spatial resolution. A new field of plasma processing of materials is emerging, which includes new techniques in semiconductor manufacturing, anticorrosion coatings, machine tool hardening, lighting and metallurgy. When these applications approach industrial usefulness, they get picked up by the private sector. However, the fundamental plasma science from which these evolve is not pursued by industry. The prevalence of plasmas in the universe and in industry yields a subject with a strong and healthy cross-fertilization between the fundamental and applied aspects of the field.

Despite the fundamental and broad applications of plasma physics, it so happens that the Department of Energy fusion program is the dominant supporter of plasma physics research in the United States. No other agency is prepared to shoulder this responsibility. For the health of this vital field of science, it is critical that this support be strong and stable. This enormous scientific and technological value to society is often eclipsed by the overarching fusion goal, which is indeed the most exciting application of plasma physics.

Fusion Energy : The critical need for fusion energy is indisputable. The Earth is being quickly depleted of fossil fuels, which are environmentally destructive, as well as temporary. A secure and environmentally sound energy source is essential for national (and world) well-being. Our national security and economic health demands such an energy source. Fusion is one of a very few solutions, if there are any other at all, to the world's need for long-term energy. It is well-established that fusion energy can be long-lasting, clean, and safe - the fuel will last for millions of years, there is no chance for catastrophic accidents, and there are no toxic gases or greenhouse effect.

There are two approaches to fusion - magnetic confinement fusion and inertial confinement fusion. In magnetic fusion the hot plasma is confined in a magnetic "bottle;" in inertial fusion the plasma is unconfined, and fuses in the billionth of a second before it flies apart.

Progress : Progress in fusion, one of the greatest scientific challenges to confront mankind, has been exceptional; this progress can be measured by numerous scientific yardsticks, perhaps the most telling being the fusion power produced in experiments. Fusion power has increased at a galloping rate over the years, with ten million watts produced for a short period of time in the TFTR experiment at Princeton. The promise and impressive progress of fusion has been praised repeatedly by outside distinguished review panels. The pioneers of fusion research did not appreciate the full weight and complexity of the fusion challenge. But, we can judge that in a rough chronological sense we are now half-way to a commercial reactor.

Fusion Program Structure : The magnetic fusion program has two components - the core science & technology research program, and the next-step large devices. The planned large facilities consist of the Tokamak Physics Experiment (TPX) and the International Thermonuclear Experimental Reactor (ITER). The core is the underpinning, the top priority component (from which TPX and ITER grew, and to which the TPX and ITER results will feedback). The core is essential in order to resolve known scientific issues, to innovate, to evolve our fusion concept. It must be strong in any pathway to fusion. The core also provides the fundamental science of immediate value.

The large facilities are essential to produce reactor-like conditions not achievable in small experiments. TPX will demonstrate continuous operation of a fusion system, and will develop the "advanced tokamak," a more compact, economical form of the tokamak fusion concept. It is an experiment of great scientific value. The ITER experiment, an unprecedented international partnership in science, will generate about 1 billion watts of fusion power and the first ignited plasma, a major milestone in the advancement of fusion.

The inertial fusion program is embarking upon an exciting new experiment, the National Ignition Facility (NIF). This experiment, funded primarily for its defense applications, will also test the physics of an ignited, inertially confined plasma of use to the energy goal.

To achieve fusion, we must have an integrated program consisting of the core innovative activities (which arise from universities, national laboratories, and industry) and the large experiments of TPX, NIF, and ITER, which carry us ever closer to the actual physics and technological conditions of a reactor.

Cost : The annual fusion research cost is less than one-thousandth of the annual expenditure on energy. Fusion cannot be developed by industry - the payoff is long-term; it is an essential role for government investment in our future.

Cost History : The fusion program has already contributed disproportionately to deficit reduction. The budget has been about halved in the past decade. To leave future generations a secure and timely energy source requires an increase in funding. Further cuts will substantially retard progress toward fusion. It is crucial that stable fusion funding be provided while we still enjoy plentiful energy; in this way we can develop fusion before we experience energy scarcity, or economic shocks, or severe environmental damage.

Recommendations : (1) Support the President's fusion budget request for FY 96. (2) Maintain a strong, vital core program - for fusion, science, and technology. (3) Support the two leading-edge national experiments in magnetic confinement (TPX) and in inertial confinement (NIF) . (4) Support the ITER design, and its unprecedented international partnership.

It is difficult to request support for expensive programs in a time of fiscal austerity. However, this energy and scientific research investment is tiny compared to our current annual energy expenditures. There is little, if anything, that is more important than leaving the upcoming future generations a secure energy source and clean environment.

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* The views expressed here are on behalf of the Division of Plasma Physics of the American Physical Society, not necessarily the American Physical Society as a whole.

TUESDAY, MARCH 28, 1995.

NUCLEAR R&D

WITNESS

ROBERT VIJUK, PROJECT MANAGER, ENERGY SYSTEMS BUSINESS UNIT, WESTINGHOUSE ELECTRIC CORPORATION

Mr. MYERS. Robert Vijuk, Project Manager of Energy Systems Business Unit, Westinghouse Electric Corporation. How do you pronounce that?

Mr. VIJUK. Vijuk.

Mr. MYERS. Vijuk, okay. Thank you. Your prepared statement will be placed in the record and you may proceed as you like for five minutes.

Mr. VIJUK. Thank you, Mr. Chairman, and thank you for the opportunity to discuss the nuclear energy research and development program.

Congress' Energy Policy Act of 1992 outlined several key imperatives including a key need to keep the nuclear option open for the Nation. Even with conservation, increased energy efficiency, and advancements in renewable energy resources, new base-load power plants will be needed around the turn of the century. Last year, the Energy Information Administration released statistics indicating that the country would experience a shortfall of equivalent to 350 base-load plants by the year 2010. We need to keep our options ready to be deployed to meet these needs.

Keeping in the front of nuclear technology is also vital to our Nation from an international perspective. We have long been looked to as the leaders in the commercialization of nuclear technology, and the world continues to look to the U.S. in this role. We firmly believe we must continue to set the worldwide standards to provide safe and well-engineered nuclear designs.

It is also worthy to note the nuclear export market is significant, with up to 50 nuclear plants expected to be built in Southeast Asia over the next 15 years. One plant order alone could provide up to 5,000 jobs for 5 years. We at Westinghouse have demonstrated that we believe nuclear power must play a part in our Nation's energy future. We have dedicated ourselves to the development of the next generation of reactors through the commitment of substantial resources to the AP600 plant.

In 1990, Westinghouse was awarded the AP600 design certification contract from DOE and EPRI, and the scope was jointly determined for a cost-shared $120 million program: $50 million from DOE, $70 million from industry.

In 1993, a companion cost-shared program on a first-of-a-kind engineering was awarded to Westinghouse. These two programs also provide the certainty and safety, licensing cost and schedule that is needed for confidence to proceed with nuclear power. Westinghouse has committed $120 million to these two essential programs and is providing the major share of the industry funds.

In 1990, the scope of the design certification was jointly determined and it was agreed that the test program would require about $12 million worth of work. In 1992, after extensive interaction with the NRC, the scope was expanded to include a full height integral systems test in Italy and a test in a large new facility at Oregon State University. As we reported in our testimony last year, the results of this increase in testing scope, together with the NRC fees that have been assessed against the program, resulted in a cost increase of $56 million beyond the control of Westinghouse, DOE, and EPRI.

At that time Westinghouse proposed the limits on DOE obligations be increased from $50 million to $78 million and $28 million in additional fundings be authorized and appropriated at $14 million each for the next two years. Westinghouse would match this increase and provide an additional $28 million as its commitment. Westinghouse also committed to repaying the $28 million out of royalties on the sale of the first plant.

For fiscal year 1995 Congress approved the first $14 million in increased funding for the AP600, which was matched by $14 million from Westinghouse, and Congress also stressed the importance of the project in the 1995 Energy and Water Appropriations Conference Report.

I am happy to report to you that we have proceeded aggressively with the program and we have successfully completed all testing. The design certification program is now 76 percent complete and we are on track for obtaining final design approval from NRC in September 1996.

For 1996, we seek your support in adding the second $14 million to the $49.7 million ALWR line item in the DOE budget. Again, Westinghouse commits to match this $14 million and also to pay back the additional $14 million out of a future plant sale.

Thank you very much.

Mr. MYERS. Thank you, Mr. Vijuk. Thank you very much for your fine testimony.

[The statement of Mr. Vijuk follows:]

UNITED STATES

HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

ENERGY AND WATER

SUBCOMMITTEE

Testimony

of

Robert M. Vijuk

Westinghouse Electric Corporation
Energy Systems Business Unit

Monroeville, Pennsylvania

March 28, 1995

Good afternoon, Mr. Chairman, and thank you for this opportunity to discuss the Department of Energy's Fiscal Year 1996 Nuclear Energy Research and Development Programs.

I'm Bob Vijuk, Project Manager for AP600 Design Certification in the Westinghouse Electric Corporation's Energy Systems Business Unit. Westinghouse has testified before this distinguished Subcommittee in the past, and we are proud of the unmatched role we have been able to play in the history of nuclear energy in this country as well as worldwide. We are equally proud of the dedication we bring to the continued progress of nuclear energy and the energy independence it brings to our nation.

Congress's Energy Policy Act of 1992 outlines several imperatives which must be addressed throughout the remainder of this century. Among these imperatives is the need to ***keep the nuclear option open for the United States.*** In parallel, the nuclear industry has developed a comprehensive strategic plan aggressively devoted to making sure that this country has the nuclear option when needed.

Toward these ends, Westinghouse continues to invest in the development of advanced nuclear plants. The facts support our belief that even with necessary and aggressive conservation, increased energy efficiency, and advancements in renewable energy resources, new baseload power plants will be needed to support economic growth in the next century. Our nation's economy, growing even at a moderate rate, will eventually dictate the need for additional generation capacity. Last year, the Energy Information Administration released statistics indicating that the country would experience a shortfall the equivalent of 350 baseload plants by the year 2010 -- which includes replacements for plants that will be retired combined with a conservatively calculated new demand growth. As this need for new baseload generating capacity arrives during the next 15 years, we must have all available options at the ready so that effective choices can be made.

Keeping in the forefront of nuclear technology is also vital to our nation from an international perspective. The United States has been the world leader in the commercialization of nuclear technology and the world continues to look to the U.S. for technology development. Indeed, without an international nuclear program, our participation in shaping the international nuclear non-proliferation regime would be greatly diminished.

We firmly believe that we must continue to set the worldwide standard to provide the safest and best-engineered nuclear designs, components, and fuel services worldwide. The nuclear export market is also significant with up to 50 nuclear power plants expected to be built in Southeast Asia over the next 15 years. One plant order ***alone*** would provide up to 5,000 jobs for the following five years.

The AP600 design has also generated such strong interest worldwide that 20 nations (including France, Italy, Spain, and Japan) have joined the engineering and testing efforts. This international coalition is strong evidence that the world still looks to the United States for leadership in nuclear power and that AP600 meets the test of a world-class product. China has also shown a keen interest in AP600. Congress's recognition of potential environmental problems worldwide if the energy needs of Southeast Asia are met solely with fossil fuel plants places additional emphasis on the importance of AP600.

We at Westinghouse have demonstrated through our actions that we believe nuclear power must play a part in our nation's energy future. We have dedicated ourselves to the development of the next generation of reactors -- most prominently through the commitment of substantial resources to the commercialization of the AP600 plant design.

AP600 is a simplified, safe, and economical 600-megawatt power plant, poised to provide a new era of nuclear power generation. Designed to satisfy the standards set by the U.S. Department of Energy and embodying the principles of the Advanced Light Water Reactor Utility Requirements Document, AP600 is an elegant combination of innovative safety systems that rely on dependable natural forces and proven technologies.

From the outset, the Westinghouse AP600 approach has been to provide certainty -- to the utilities, to the financial community, and to the public -- with a design that:

- Simplifies plant systems and equipment, operation, inspections, and maintenance by greatly reducing the amount of valves, pumps, piping, HVAC ducting, and other complex components.

- Uses experienced-based power generation components which are designed to offer a high level of reliability.

- Provides a high degree of public safety and licensing certainty.

- Shortens construction schedules and increases schedule certainty by the use of modular components, giving AP600 the ability to be constructed in three years from pouring the first concrete to fuel loading.

- Uses standardization to offer electric power at a competitive cost.

From 1985 to 1989, Westinghouse completed preliminary design and proof of principle testing for AP600, including cost and schedule estimates, under a program funded by DOE and EPRI. In 1990, Westinghouse was awarded the design certification contract from DOE and EPRI and the scope was jointly determined for the cost-shared $120M five-year Design Certification Program ($50M from DOE, $22M from EPRI, and $48M from Westinghouse). In March 1993, the companion cost-shared program on First-of-a-Kind Engineering (FOAKE) was awarded to Westinghouse as a result of a market-driven utility selection process. This program, together with the Design Certification Program, will provide the certainty in safety, licensing, cost, and schedule which is needed for public, investor, and utility confidence to proceed with nuclear power. The FOAKE program scope totals $158M ($86M DOE/Advanced Reactors Corporation and $72M Westinghouse). Westinghouse has committed $120M to these two essential programs and is providing the major share of the industry contribution.

In 1990, the scope of the Design Certification Program was jointly determined and it was agreed by DOE, EPRI, and Westinghouse that the test program required to support the design and analysis and safety systems submissions to the Nuclear Regulatory Commission (NRC) was about 10 percent (or $12M) of the total scope. In 1992, detailed discussions were held between Westinghouse and NRC on the test program. The test program scope expanded to include the full-height integral systems tests at the SPES facility in Italy and the testing proposed at Oregon State University expanded considerably, requiring construction of a large test facility. As we reported in our testimony to this Subcommittee last year, the result of this increase in the testing scope, together with NRC fee assessments was a cost increase of $56M beyond the control of Westinghouse, DOE, and EPRI program management. At that time, Westinghouse also proposed that the limitation on the DOE obligation be increased from $50M to $78M and that the $28M in additional funding be authorized and appropriated at $14M in each of the next two fiscal years, FY 1995 and FY 1996. Westinghouse would match this increase and provide an additional $28M as its commitment to the completion of the program. Westinghouse also committed to repaying the additional $28M in DOE funding as royalties on the sale of the first AP600 plant.

For FY 1995, Congress approved the first $14M in increased funding for the AP600 Program -- which was matched by $14M from Westinghouse -- and stressed the importance of the project in the FY 1995 Energy and Water Appropriations Conference Report. I am happy to report to you that we have proceeded aggressively with the program and have successfully completed the $13M test program at Oregon State University and also the testing program in Italy. The Design Certification Program is now 76% complete and we are on track for obtaining Final Design Approval in September 1996.

For FY 1996, we seek your support in adding the second $14M to the $49.7M ALWR line in the DOE budget. Again Westinghouse commits to match the $14M and also to pay back this additional DOE funding on the sale of the first plant.

In summary, substantial progress has been made in the AP600 program, and the ALWR program overall, through your support, the full support and cooperation of the 16 utility members of the Advanced Reactors Corporation, the DOE, and the domestic and international members of the AP600 team.

We believe this progress is:

- Vital to the future of nuclear power in America,
- Vital to developing technology exports and jobs for the United States,
- And necessary to maintain and enhance the influence of the U.S. in international nuclear policy.

Thank you. I will be pleased to answer any qustions.

TUESDAY, MARCH 28, 1995.

FUSION ENERGY PROGRAM

WITNESS

DR. STEPHEN O. DEAN, PRESIDENT, FUSION POWER ASSOCIATES

Mr. MYERS. Mr. Steven Dean, President of Fusion Power Associates. Welcome back, Dr. Dean.

Mr. DEAN. Thank you, Mr. Myers. It is a pleasure to be back. I feel strange testifying to this committee because it is like preaching to the choir. I know that over the years this committee has been very supportive, not only of fusion but of all the energy programs, and the committee is very much aware of the problems of getting priority for energy programs these days. Many of the other speakers have mentioned the fact that we spend so much money on energy and that almost all of our energy comes from fossil fuels and with our sensitivity to the environment, we cannot continue to rely on these fossil fuels forever.

So I will not repeat the arguments that these people made. They are in my testimony.

Mr. MYERS. Your prepared statement will be a part of the record.

Mr. DEAN. Yes, I know. Thank you.

I know that it is no surprise to you I come here to support the President's budget, not only for magnetic fusion but also for inertial fusion within the defense programs and specifically the two projects that are requested for construction, the TPX project and the National Ignition Facility.

I would like to spend my time, though, addressing a question that I know your committee has asked the DOE witnesses in the past, at least I read about it in the trade press. The question is a lot of us have been around long enough to know that 25 years or so ago people promised that we would have fusion in 25 years and we are getting close to that. The question is, though, why don't we have it?

I remember when I first came into fusion in 1962, it was just a few years after the 1958 Geneva Conference on the Peaceful Uses of Atomic Energy where fusion was declassified. The U.S., Russia, and the British declassified their programs in 1958; and the famous Indian scientist, Dr. Bhabba, in the summary of that conference predicted it would take 20 years to prove the scientific feasibility of fusion and another 20 years to demonstrate practical power.

Actually, the first prediction that it would take 20 years to demonstrate scientific feasibility, which would have been about 1978, I say came true. If you look at the experiments in the United States in the 1970s, the Alcator experiment at MIT produced the required density and confinement time product that was necessary for fusion, and the Princeton Large Torus, the PLT, raised the temperature of a plasma in the tokamak to 60 million degrees, which was above the 45 million minimum necessary for fusion.

I might mention that since that time we now produce over 300 million degrees routinely in our experiments. Those experiments in the 1970s I think proved to most scientists satisfaction that fusion was feasible. And in 1976 this committee authorized the Tokamak

Fusion Test Reactor aimed at producing 10 megawatts for a second. Took 20 years to do that because of changing policies and declining budgets.

But what of the other 20 years? By 1976, we produced in ERDA a 20-year plan to get to fusion by the year 2000 for $15 billion, and attached to my testimony is a chart which I show you what has happened. In that plan, the top chart, the top graph shows the facilities and test reactors that we said would be required in order to make power by the year 2000. Required several construction facilities and it required a growing budget.

The bottom curve shows the budgets that have actually come through in the last 15 years. You can see why we are not building a fusion power reactor today. We built none of the facilities that would be required to get beyond TFTR and we had none of the money that would be required on a level that would allow us to be making power today.

So that is the answer to the question as to why we are not making fusion power today or will not be making it in the near future. Nevertheless, for the money that we got, I think you will have to agree that we produced the results that we promised commensurate with the money that was received.

I know these are tough times. Maybe we will not get the money that we need to go forward. And whatever monies we get, I think you will find that progress is made in the science. We will get smarter and we will position ourselves for the day when maybe the country will take energy seriously again and will authorize advanced facilities.

The TPX facility system aimed at producing modest amounts of fusion power continuously. It is a major step forward beyond making fusion power for a second. We are ready to do it and we hope that the committee will allow us to do it. One of the things I think the committee could do for us in these times is whatever monies you can provide us do not tell us exactly how to spend it. If you could allow us to go forward with construction of new projects within whatever monies we have had, perhaps we can get some of these jobs done. But if the Congress tells us, well, you can have so much money but you are not allowed to build anything, I don't think we will ever get to fusion power. We must build new facilities if we are ever to get there. So I appreciate the support of this Congress in the past.

One final comment. I notice in the Friday press the other day the Science Committee, the Republicans on the Science Committee put out a statement. They said criteria for prioritizing R&D funding. I think we meet these criteria. One said Federal R&D should be focused on long-term, noncommercial activities with potential for great scientific discovery leaving economic feasibility and commercialization to the marketplace. I think we satisfied that.

It says revolutionary new ideas and pioneering capabilities that make possible the impossible that which has never been done before should be pursued. I think we qualify for that. Fusion power has never been produced for practical uses. We are trying to do it. It is the impossible that we are trying to make possible, and we thank you for your support over the years.

Mr. MYERS. Well, thank you, Dr. Dean. I think you will not get any partisan statements out of this subcommittee. We usually are united and we share your concern.

[The statement of Mr. Dean follows:]

STATEMENT ON FUSION ENERGY

BY
DR. STEPHEN O. DEAN
PRESIDENT, FUSION POWER ASSOCIATES

TO THE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
OF THE
HOUSE COMMITTEE ON APPROPRIATIONS

March 28, 1995

I urge the Committee to provide the full funding requested by the President for the Department of Energy programs of the Office of Fusion Energy within the Office of Energy Research and the Office of Inertial Confinement Fusion within the Office of Defense Programs. In particular, I urge the Committee to appropriate funds for the construction of the Tokamak Physics Experiment (TPX), a facility important to continued progress in magnetic fusion development, and also to appropriate funds for the National Ignition Facility (NIF), a facility essential for our national defense Stockpile Stewardship program and to provide data essential to the eventual application of inertial fusion for energy applications.

Today I want to comment specifically on a question that this committee has raised on several occasions, namely why is it that we do not have fusion power plants today, when many of us remember the promises made in the late 1970's of fusion power plants operating by the year 2000.

At the 1958 Geneva Conference on the Peaceful Uses of Atomic Energy, where fusion was first declassified and discussed in a public forum, Dr. Bhabba, a famous scientist from India, made a statement that has been often quoted and misquoted since. He said that it would take 20 years to prove the scientific feasibility of fusion and another 20 years to produce a practical power plant.

His first prediction was, in fact, fulfilled. The scientific feasibility of the tokamak approach to fusion was demonstrated to the satisfaction of most scientists by the combined results from two experiments in the U.S. by 1978. In 1975-76, scientists at MIT demonstrated in the Alcator tokamak the required combination of density and confinement time necessary for fusion power. And in 1978, scientists at the Princeton Plasma Physics Laboratory demonstrated in the PLT device that plasmas in a tokamak could be heated to temperatures exceeding the ideal ignition temperature of 45 million degrees Celsius. Temperatures up to 60 million degrees were obtained. (It is worth noting that we now routinely produce temperatures exceeding 300 million degrees in TFTR). I have attached copies of the press accounts of these 1970's achievements.

But what of the second of Dr. Bhabba's predictions. Obviously it has not come true. Why is this?

In FY 1976, Congress authorized construction of the Tokamak Fusion Test Reactor, designed to produce 10 million watts of fusion power for about 1 second. In late 1975 and early 1976, I had the honor of leading a national fusion planning study that resulted in a 5 volume detailed plan and cost estimate for operating a fusion demonstration power plant by the year 2000 (ERDA-76/110. July 1976). That plan called for the construction of a sequence of facilities and experimental reactors and provided a cost estimate of approximately $15 billion (1978 dollars) to complete the task. The basic features of that plan were subsequently incorporated into the National Magnetic Fusion Energy Engineering Act of 1980, passed by the Congress and signed into law by President Carter one month before he lost the election. It called for a 20 year, $20 billion commitment to fusion, culminating in the operation of a demonstration power plant by the year 2000.

I have attached to my testimony, a chart showing the construction project and budgetary history of fusion since that time. None of the facilities called for in the plan have been constructed and the budgets necessary to stay on a year 2000 schedule have not been forthcoming. Indeed, as the graph shows, a steady growth in funding was required, whereas a steady decline as occurred.

I cannot blame this committee for either the budget decline or the lack of approval for new construction. Most of this decline was the result of changing Executive Branch policies and changing DOE management personnel. In the last two years, however, new fusion facility construction has been stopped in the Senate, in spite of the fact that both the Executive Branch and this Committee had endorsed the project.

Failure to meet the year 2000 goal should not be attributed to any unwillingness on the part of the fusion scientific and engineering community to commit to an ambitious schedule, provided the requisite funding is forthcoming. I believe that an objective assessment of fusion progress over the past 15 years shows that there has been progress commensurate with the funding provided.

As the Committee knows, fusion is one of only a few options the world has to provide essentially unlimited energy supply for future generations. Although the science is still evolving and the technology challenges are still formidable, fusion research and development has made systematic and impressive progress, and scientists are confident that a practical fusion power plant can be developed.

The importance of fusion is recognized by all countries, as evidenced by the joint effort of the European Community, Japan, Russia, and the United States to design and develop the technology for the International Thermonuclear Experimental Reactor (ITER). The United States, which once had the largest fusion effort in the World, is now surpassed by both Europe and Japan.

Recently the major U.S. magnetic fusion facility, the Tokamak Fusion Test Reactor (TFTR) achieve its goals, producing ten million watts of fusion power for about a second. That facility was approved for construction by this committee in the FY 1976 budget, that is, almost 20 years ago. Although the accomplishment of the goals of TFTR was delayed many years by budget shortfalls and changing Administration policies, the scientists themselves never lost their personal dedication to the original mission.

If progress is to continue toward the ultimate goal of commercial fusion power, it is essential that a new major magnetic fusion facility be funded for construction. After much review, and taking into account the stringencies of the Federal budget, the DOE has proposed an advanced fusion facility called the Tokamak Physics Experiment (TPX). This experiment is designed to make modest amounts of fusion power continuously and to significantly advance both the scientific knowledge base and the technology that will be required to make fusion commercially attractive. It is imperative that this project be funded for construction now.

While large construction projects necessarily receive the most public notice and attention, it is equally imperative to remember that the ultimate payoff of fusion is still decades in the future and that, consequently, it is also imperative to maintain a strong national program in the fundamental science of fusion and the search for improved and innovative fusion concepts. The funding in these areas has suffered disproportionately over the past several years as the overall funding available for fusion has declined. Thus it is important that the overall fusion budget not be allowed to decline further.

Fusion development has already resulted in dozens of commercial products. At Fusion Power Associates annual meeting and symposium on "Near-Term Applications of Fusion and Plasma Technologies," October 5-7, 1993, many industries described commercial businesses ranging from medical diagnostics to plasma torches for treating hazardous wastes, that had their origins in the fusion research program.

The DOE inertial confinement fusion program has also made continuous and impressive progress using high power lasers and particle beams. This program not only has the potential to eventually become a commercial energy source but, in the near-term, it plays a critical role in the study of weapons physics. This role has become even more critical, with the cessation of weapons tests, for the maintenance of core scientific and technical skills in the weapons program. This program has also resulted in many near-term commercial products, especially within the optics and microdiagnostics industries.

U.S. industry must play an essential and growing role in the DOE's fusion programs if these programs are to result in commercial products. New policies to cooperate with industry are taking hold within DOE and the application of these policies to the fusion program should be expedited.

Finally, it is important to note that energy is a major business sector in the U.S., with annual sales exceed $400 billion. Today, less than 1% of that amount is expended annually on research and development of new energy sources and technologies. The TOTAL cost to develop fusion over the next several decades is less than 10% of the ANNUAL expenditure for energy in the United States and is comparable to the ANNUAL contribution to the U.S. trade deficit due to imported oil.

Fusion and other advanced energy technologies are absolutely necessary for the survival of advanced industrial civilization. The money invested in fusion now is a modest and prudent investment to ensure a high standard of living for future generations.

WASHINGTON STAR NEWS 11/6/75

U.S. Hails MIT Fusion Feat, Next Step Is at Princeton

Associated Press

The effort to copy the process that fuels the sun — called fusion — has reached a milestone at the Massachusetts Institute of Technology, federal officials have announced, and they are turning their attention to Princeton University for the next step.

Officials of the Energy Research and Development Administration said yesterday that a fusion research project at MIT has achieved a five-fold improvement in the containment of the hot mixture of gases that is necessary for fusion to begin.

Dr. Robert Seamans, the ERDA administrator, said the MIT project, called the Alcator experiment, has achieved "a major development in the fusion power program."

THE ALCATOR success follows attainment of temperatures of 100 million degrees centigrade in fusion experiments last summer by scientists at the Lawrence-Livermore Laboratory in California.

"Progress has been more than satisfactory this year," said Dr. Stephen Dean, an ERDA scientist who helps direct the research project.

The next step will come sometime after December at Princeton, where scientists will begin work with an experimental fusion machine that has been under construction for three years and costs $14 million.

Present nuclear reactors generate electricity by utilizing a reaction process called fission — the process that created the power of the first atomic bombs.

Fission involves splitting the nucleus of an atom of a heavy element, such as uranium or plutonium, into smaller parts; fusion is the opposite — fusing together of two atoms of a light element, such as hydrogen — to form an atom of a heavier element.

PROPORTIONATELY, fusion releases far more energy. Scientists say the energy equivalent of 300 gallons of gasoline could be wrung from one gallon of sea water if man had a way to tame fusion.

To achieve fusion other than explosively, as in the hydrogen bomb, scientists must take a hot gas called a plasma and heat it to millions of degrees, then compress it so sharply that individual atoms can be forced to fuse.

Efforts under way here and in the Soviet Union and elsewhere concentrate on this, often using magnetic fields to force electrically charged gas particles together.

FUSION SCIENTISTS speak of success in terms of how densely they can compress the plasma and how long such conditions can be sustained. The Alcator experiment achieved a five-fold increase in the combined plasma density-time quantity, which scientists call "N Tau."

The Princeton experiment is expected to heat a plasma to 50 million degrees instead of the 10 million degrees achieved by Alcator.

Both experimental devices are part of a class of fusion machines called Tokamaks, named after a pioneering Russian machine. The U.S. government is supporting several Tokamak experiments.

After Princeton, Dean said, attention will turn to General Atomic in La Jolla, Calif., where a Tokamak is expected to reach an N Tau value so high that for the first time the energy given off will equal energy that must be pumped into the system to cause the reaction. At present, more energy is required to produce fusion than it gives off in return.

THE LA JOLLA experiments, which will cost $26 million to prepare, won't begin until early 1978.

In 1981 will come an even larger machine that will attempt to burn more elaborate fusion fuels. Cost estimates for that are now $215 million. ERDA scientists are planning the first experimental fusion power reactor for 1985 at a cost of about $500 million.

Sometime in the 1990s will come the first demonstration prototype commercial fusion reactor.

"We hope the cost might be held to about $1 billion," Dean said.

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The Weather

day—Partly cloudy, high in 80s. r in 70s. Chance of showers is 30 rcent today and 30 percent to- ht. Monday—Partly cloudy, high mid 80s. Yesterday—1 p.m. AQI: temp. range: 87-73. Details on B2.

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J.S. Makes Major Advance in Nuclear Fusio

By Bill Peterson
Washington Post Staff Writer

inceton University scientists have e a major advance in the race to nuclear fusion—the hydrogen process—which a top govern- energy expert said yesterday l lead to the production of the practical working fusion reactors.

wo a small, donut-shaped test re- the scientists produced sun-like eratures of more than 60 million s centigrade inside a kind of etic bottle.

is the first time we've pro- the actual conditions of a fusion reactor in a scale-model device," said Dr. Stephen O. Dean, director of the Department of Energy's magnetic confinement systems division.

"This is the biggest thing that has ever happened in fusion research," he said.

"The question of whether fusion is feasible from a scientific point of view has now been answered," Dean added. "The practical questions of what price it will cost and when it will be duplicated commercially are now engineering and economic questions."

The potential payoff is unlimited electrical energy, one of the prerequisites for the long-term survival of advanced civilization.

The attractions of taming the fusion process are great. Fusion, the joining of two atomic particles at high temperatures, is the same nuclear reaction that powers the sun.

The reaction is the most efficient one known, producing 180 times more usable energy than it consumes. Its fuel, "heavy" forms of hydrogen, is as inexhaustible as sea water. One glass of water contains fusion fuel equal to the energy in a ton of gasoline. One pound of "heavy" hydrogen produces the same energy as 5,000 tons of coal.

Heavy hydrogen refers to isotopes of hydrogen known as deuterium and tritium. They possess much greater mass than ordinary hydrogen. They occur naturally and can be extracted from sea water.

The fuel has the added attraction of "burning out" without leaving radioactive waste like that from modern atomic power plants.

Current nuclear reactors use fission, the same process used in the atomic bomb. They depend on a limited world supply of uranium and plutonium.

Scientists have known about the fusion process for more than 40 years. It was first made to work in the hydrogen bomb.

But the problem has been controlling it for peaceful uses. The basic problem has been to contain a searing plasma of hydrogen ions long enough and in thick enough concentration for them to smash together with sufficient energy to fuse, releasing energy.

Two conditions must be met for the ionized plasma to undergo a continuous fusion: the reaction temperature must be at least 44 million degrees centigrade, and each cubic centimeter of the plasma must contain at least 100 trillion ions for one se

Two years ago both America Soviet scientists achieved 10 m degrees in experiments. The Pr ton group, working under gover contracts, reached 25 million de last December.

Using a donut-shaped device c Princeton Large Torus, a concept nally developed by the Soviets, the Jersey scientists produced a tem ture of 60 million degrees in re weeks, and they estimate that scale model will reach up to 100 m

They did so without damaging

See FUSION, A4, Col. 1

U.S. Makes a Major Advance in Nuclear Fusion

FUSION, From A1

confinement of the plasma in its strong magnetic field—a fear long expressed by scientists.

The experiments were conducted in a 3-foot-high and 10-foot-wide donut-shaped device that encloses two smaller donuts. The smaller plasma donut is about 30 inches in diameter. It is surrounded by a vacuum chamber about 3 times as large, which forms a "magnetic bottle."

An intense beam of hydrogen atoms is shot through the walls of the magnetic bottle to heat up the plasma and make the reaction occur.

The process was developed by Dr. Harold P. Eubank of Princeton's Plasma Physics Laboratory and Dr. H. H. Harelton of Oak Ridge, Tenn.

It is to be announced in a scientific paper to be delivered Aug. 23 at an international conference on controlled fusion and plasma physics at Innsbruck, Aust ia.

The Dep ent of Energy is expected to a unce the advance next week, although official press spokesmen yesterday denied that.

Dr. Harold Furth, one of the chief Princeton researchers, said DOE officials had asked the scientists to refrain from comment.

"All I can say is we've developed something really important," he said. "Nothing has happened of this significance in fusion research in the last 10 years."

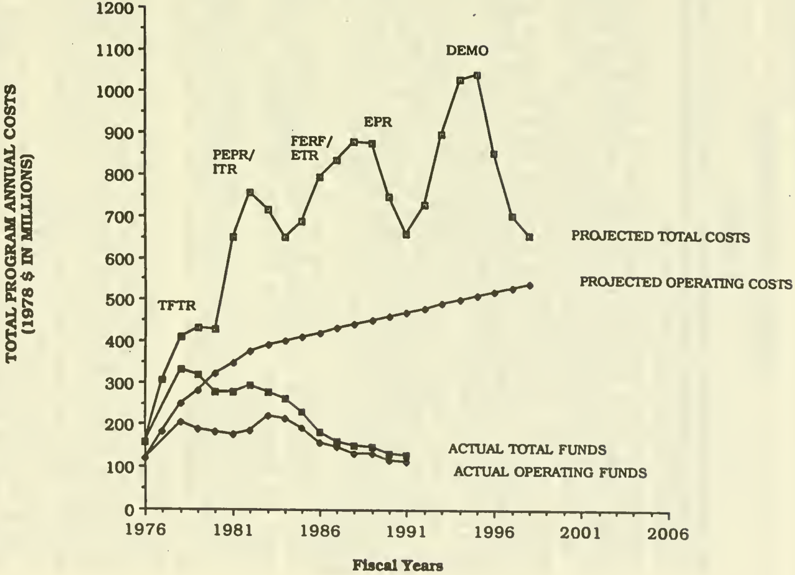
Dean said the temperature experiment was one of two major breakthroughs expected in the fusion reactor field. The second, expected next year, will be to sustain the temperature for longer periods.

"We now know how to set the size of the reactor and how to calculate and scale it up in size," he said.

The temperature and time elements will be brought together in a full-scale test reactor, currently under construction at Princeton. It is scheduled to be completed in 1982.

It will probably be 20 to 30 years befor e commercial applicability of fusi actors is demonstrated, Dean said.

**OFE PROGRAM BUDGET HISTORY COMPARED WITH
1976 ERDA MAGNETIC FUSION PROGRAM PLAN
LOGIC III REFERENCE OPTION PROJECTION**



TUESDAY, MARCH 28, 1995.

ENERGY BIOSCIENCES

WITNESS

DR. LOUIS SHERMAN, PROFESSOR, DEPARTMENT OF BIOLOGICAL SCIENCES, PURDUE UNIVERSITY, REPRESENTING THE AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS

Mr. MYERS. Dr. Lou Sherman, Professor of Department of Biological Sciences at Purdue University, someplace in the Midwest out there, representing the American Society of Plant Physiologists.

Mr. SHERMAN. Thank you, Mr. Chairman. This goes under the category of, now, for something entirely different.

As you indicated, I am here not only as a member of Purdue's faculties but representing the American Society of Plant Physiologists, a society composed of over 5,300 plant scientists from around the U.S. and the world, 57 of whom are at Purdue.

I have been asked to provide these remarks because I have long been funded by this program and because I have had a great deal of support for this important area of science. I am here to speak specifically on behalf of the Division of Energy Biosciences. That is a little program by the standards of DOE, but one that is very important.

The program funds pioneering research in the plant sciences and what is referred to as nonmedical microbiology. The division's request for fiscal year 1996 is 29-and-a-half million. So it is really quite small overall.

This is a broad area of research with tremendous opportunities for breakthroughs that will offer Americans a viable alternative fuels, cost-effective ways of cleaning the environment, and other new technologies.

The wealth of opportunities in this area is really remarkable. Unfortunately, a full 95 percent of all new ideas submitted to the Division of Energy Biosciences has had to be turned away because of relatively limited funds. So I hope that you will fully fund this program this year and establish a plan to promote and enhance the activities of this division in the future.

In a way, this program is unique in that most of these programs, their research is not funded by any other government agency. I think it is a remarkably effective investment for the Nation. We get the opportunity to tackle fundamental scientific problems that relate to the way plants answer to microbes and utilize specialized energy sources, such as the sun, to power the activities of these cells and to manufacture some remarkable products. And, in addition, the Division of Energy Biosciences actively promotes the transfer of these new technologies to the practical solution of energy-related and environmental concerns. Let me talk about three broad areas of research funded by this program.

The first is the way in which these cells can use the sun's energy to manufacture chemicals. Actually the program was set up as a way of determining how plants and microbes can use the mechanism of photosynthesis to channel the sun's energy into chemicals that can be used by man for various things. So with this knowledge we have been able to improve yields and efficiency of agriculture and forestry and to develop efficient and economical devices such as photoelectric cells.

These cells also produce some very important compounds, such as anticancer agents, cell growth enhancers, and molecules that regulate man's biological clocks that eventually can be used.

The second broad area is to use these plants and microbes to manufacture new products. We can now use biotechnology to introduce into these organisms the ability to produce such valuable substances as lubricants and plastics that may replace petroleum-based products. Imagine, if you will, a time in which farmers can redirect their excess crop capacity to grow corn plants that accumulate vast amounts of valuable biodegradable plastics or vaccines. I think the Indiana landscape would look nice in that way.

Or imagine bacteria that can convert plant wastes, such as corn cobs, wheat straw or grass clippings into ethanol, which can be used to fuel cars or as chemical raw materials. Both of these things are possibilities due to the long-term basic research projects that have been funded by energy biosciences.

The third area of interest is one that we now call phytoremediation; that is, to use plants or microbes to clean up toxic wastes. I think this committee knows full well there are many sites under DOE's jurisdiction that are highly contaminated with either heavy metals or radionuclides or organic pollutants. Energy biosciences has taken the lead to develop plants and microbes which then constrains these toxic materials and therefore removes them from the environment.

Finally, this program has been very valuable in technology transfer and commercialization and has developed devices used in artificial lighting or specialized devices in research such as the DIS, which has taken sophisticated remote sensing technology into the biology laboratory.

I feel the U.S. must invest in such research if we are to reap the harvest provided for us by biological energy conversion. Amidst growing global competition, we must invest in basic research to prosper. Basic research is the essential underpinning for any application of new technology we hope to produce. This is particularly true in this area of the life sciences.

Mr. Chairman, we appreciate the strong support this committee has given energy biosciences in the past and support that results in revenue producing new technologies that will keep America competitive in some rapidly changing industries. So I appreciate the time here.

I wish I was going to the final four in Seattle instead, but thank you for the time.

Mr. MYERS. We wish we were going with you. Thank you for your testimony. I thought we were going for a while.

Mr. SHERMAN. I was hoping to for a while, but I am glad to be here to talk to you about this important program. Thank you.

Mr. MYERS. Thank you.

[The statement of Mr. Sherman follows:]

American Society of Plant Physiologists
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STATEMENT OF

THE AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

ON

MARCH 28, 1995

RELATING TO THE

PROPOSED FISCAL YEAR 1996 APPROPRIATION FOR
RESEARCH AT THE DIVISION OF ENERGY BIOSCIENCES
DEPARTMENT OF ENERGY

PRESENTED BY

DR. LOUIS SHERMAN
PROFESSOR AND HEAD
DEPARTMENT OF BIOLOGICAL SCIENCES
PURDUE UNIVERSITY

Summary

The Department of Energy's Division of Energy Biosciences funds basic research in the Plant Sciences and non-medical microbiology in three major areas: the use of the sun's energy to manufacture chemicals; the use of plants and microbes to manufacture new products; and the use of plants and microbes to clean up toxic wastes. For example, the Division has funded research to enable researchers to manipulate plants so that they produce biodegradable plastics as the product of an agricultural crop. The results of such research projects hold the promise of allowing many unique chemicals to be produced by plants and photosynthetic microbes very inexpensively, because these chemicals are produced as a result of capturing the energy from the sun. Another example of the fruit of this program is that plants have been developed to assist in cleaning up the environment by absorbing large concentrations of toxic chemicals. Phytoremediation -- using plants to clean up the environment -- has the potential of solving many of our country's large pollution clean-up problems cheaply and efficiently. The entire program of the Division of Energy Biosciences, in addition to the accomplishments reflected in these two examples, is especially critical to our nation's future, particularly when you consider that much of the research supported by this program is not funded by other governmental agencies. Furthermore, the Division of Energy Biosciences has an exceptional record of promoting the transfer of their basic science discoveries to commercial ventures. **We request that the Division of Energy Biosciences be supported at or above the level requested in the President's proposed fiscal year 1996 budget and that this Committee continue to support the activities of this program.** The Division of Energy Biosciences program is an example of the way basic science should be used to solve some of our country's most challenging problems.

Thank you, Mr. Chairman, my name is Louis Sherman and I am Professor and Head of Biology at Purdue University. I'm representing the American Society of Plant Physiologists (ASPP), a society composed of over 5,300 plant scientists from the U.S. and around the world, 57 of whom are at Purdue. I have been asked to provide these remarks because of my long interaction with this DOE program and my strong support for research funding for this important area of science.

I speak on behalf of the Division of Energy Biosciences, a small program in the Department of Energy's Office of Basic Energy Sciences. This program funds pioneering research in the plant sciences and what is referred to as non-medical microbiology. The division's request for FY96 is $29.5 million. This is a broad area of research with tremendous opportunities for breakthroughs that will offer Americans viable alternative fuels, new cost-effective ways of cleaning the environment and other new technologies. The wealth of opportunities available to be tapped by research in this area are exceptional. A full ninety-five percent of the new ideas submitted to the Division of Energy Biosciences are turned away each year because of relatively limited funds. Sadly, among those 19 out of every 20 submissions rejected, there are some brilliant opportunities lost. I hope that you will fully fund this program this year and that you will establish a plan to promote and enhance the activities of this division in the future.

I consider this program to be unique and a remarkably effective investment for the nation. Without this Committee's support for the Division of Energy Biosciences, the U.S. would be far behind much of the world in developing knowledge for new technologies in this broad and promising area of research. The program of the Division of Energy Biosciences tackles fundamental scientific problems that relate to how plants and certain microbes utilize specialized energy sources, such as the sun, to power the activities of these cells and to manufacture remarkable products. The Division of Energy Biosciences actively promotes the transfer of these new technologies to the practical solution of energy-related and environmental concerns. The research programs can be placed into three basic categories:

Using the sun's energy to manufacture chemicals. Plants and certain microbes are the earth's only source of renewable biomass. By this I mean that the organisms have the ability, through the mechanism of photosynthesis, to convert the energy in sunlight into the chemical feedstocks that mankind and all other living creatures require for life. Research supported by the Division of Energy Biosciences on the fundamental mechanisms of photosynthesis is making it possible to better understand plant metabolism and plant growth and development. With this knowledge, we are now able to improve the yields and efficiency of agriculture and forestry and to develop efficient and economical devices (such as photoelectric cells) for capturing solar energy.

Using plants and microbes to manufacture new products. This program was established to help us understand the products of energy bioconversion. Biological systems perform myriads of chemical transformations that result in products with unique characteristics. Understanding these natural processes of plants and microbes will allow scientists to exploit their benefits. Some chemicals produced naturally by these organisms may prove to be highly beneficial to mankind and include compounds such as anti-cancer agents, cell growth enhancers and molecules that regulate man's biological clocks.

We can now introduce into plants and microbes the ability to produce (biologically) such valuable substances as lubricants and plastics that may replace petroleum-based products. Imagine farmers redirecting their excess crop capacity to grow corn plants that can accumulate vast amounts of valuable biodegradable plastics or vaccines and imagine also bacteria that convert plant wastes, such as corn cobs, wheat straw or grass clippings into ethanol, which can be used to fuel our cars and as chemical raw materials for the manufacturing of other important chemicals. Both of these possibilities are becoming a reality because of long-term basic science projects funded by the Division of Energy Biosciences, and now commercialized by small companies.

Using plants and microbes to clean-up toxic wastes-phytoremediation. The soil and water of a large number of manufacturing and mining sites, including many for which the DOE is responsible, are contaminated with heavy metals, radionuclides, and/or organic pollutants. The Division of Energy Biosciences has taken the lead in supporting basic research and biotechnology to modify plants and microbes so that they withdraw and detoxify pollutants, thereby avoiding the enormous expense that our country expends in an attempt to physically remove the pollutants from the soil and water. Genetic selection and biotechnology are being used to create plants that concentrate large amounts of toxic metals and create the bacteria that remove sulfur pollutants from petroleum prior to combustion.

In addition, this program strongly promotes:

Technology transfer and commercialization. The research funded by the Division of Energy Biosciences has been in the forefront of commercializing many important developments. In addition to phytoremediation and the production of chemicals, the research supported by this program has also developed important technology. This includes devices that are used in artificial lighting and instruments such as the Digital Imaging Spectrometer (DIS), an innovative instrument which has brought sophisticated remote sensing technology into the biology laboratory.

The U.S. must invest in such research if we are to reap the harvest provided for us by biological energy conversion. Amidst growing global competition, we must continue to invest in basic research in order to survive and prosper -- basic research is THE essential underpinning for any applications or new technology we hope to produce. The Division of Energy Biosciences basic research program is a fine example of money well-invested for our country's future, and the way basic science should be used to solve some of our country's most challenging problems.

Mr. Chairman, we appreciate the strong support this committee has given the Division of Energy Biosciences--support that results in revenue-producing new technologies that will keep America competitive in rapidly changing industries.

TUESDAY, MARCH 28, 1995.

ALTERNATIVE ENERGY TECHNOLOGIES

WITNESS

A. DAVID LESTER, EXECUTIVE DIRECTOR, COUNCIL OF ENERGY RESOURCE TRIBES

Mr. MYERS. Mr. Tom Seth Smith, Executive Director of Rural Enterprises Incorporated.

Okay. Mr. A. David Lester, Executive Director of the Council of Energy Resource Tribes. Welcome to the committee. Your prepared statement will be placed in the record and you can proceed for five minutes as you like.

Mr. LESTER. Thank you very much, Mr. Chairman. On behalf of the 53 American Indian tribes that I work for, I want to express our appreciation for the opportunity to express our views before you.

CERT is a tribal organization composed of 53 energy-owning tribes whose mission is to improve the quality of life of their people through economic development and using their natural and human resources for long-term sustained growth. I would like to put into context what I want to say in the sense that it is just in the past 20 years that we have been able to move away from total Federal control of our lives and begin to chart our own economic social destiny, if you will.

The Department of Energy has been an important ally to us in this regard. Their assistance, both technical assistance and financial assistance, has allowed Indian tribes to begin to take control of the energy development to improve the working relationships that they have with industry and are now beginning to integrate elements of the industry within their own economies rather than just being raw material suppliers to the outside world.

The energy that we produce is significant in our regions. For example, the energy consumed in Southern California, the electricity, approximately 20 percent of that electricity is derived from the resources produced from Indian tribes in the four corners area. So we are making a significant contribution to the regional economies, and more and more we are seeking to bring the benefits of that economic growth to our own reservation economies.

The progress has been remarkable, and we want to continue that, and for that reason we are asking for some modest increases in Title XXVI programs. The Title XXVI is the Indian provisions in the National Energy Policy Act of 1992. These programs have just begun to be implemented. A number of tribes have taken advantage of this opportunity and have proposed and are now working on projects that will bring significant return to their economies, to the national energy picture in the sense of reducing dependency on outside imported energy, and contribute to the tax base of their own tribes as well as the tax base of surrounding jurisdictions.

So energy has a tremendous synergistic impact on the rural communities where the tribes are located. We recommend these modest increases, not in the sense of Federal expenditures, but rather as investments in the building of the economies and strengthening the economies in primarily the western part of the United States.

Our goals, of course, cannot be achieved unless we also improve the quality of education that is available to our people. And so a very major element in our strategies to achieve balanced, stable, diversified local economies has always been a commitment to education in science, engineering, and business.

Again, the Department of Energy has been an important partner there. And so we would urge the committee to consider how important education is to the overall energy equation in this country, that we have the qualified people. Without a strong educational component, we run the likelihood of not only importing in foreign energy, but also importing foreign technologies and expertise. And we do not need to exacerbate both of those problems.

Mr. MYERS. Well, thank you, Mr. Lester, a very fine statement.

Mr. LESTER. Thank you.

[The statement of Mr. Lester follows:]

TESTIMONY BEFORE THE HOUSE ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE ON DEPARTMENT OF ENERGY (DOE) INDIAN PROGRAMS: FISCAL YEAR 1996 BY THE COUNCIL OF ENERGY RESOURCE TRIBES (CERT)

March 28, 1995

Mr. Chairman, I am A. David Lester. For 12 years, I have had the pleasure to serve as the Executive Director of the Council of Energy Resource Tribes (CERT) and am here today representing the CERT Board of Directors. CERT is a non-profit national Tribal organization comprised of 53 federally-recognized Tribes from throughout the United States, representing nearly 60% of all American Indians living on or near reservations. The CERT Board of Directors is made up of the elected leadership of each of the 53 Tribes the CERT organization serves. CERT member Tribes include those with substantial and potential energy resources as well as those Tribes concerned about energy development, production, resource conservation, environmental protection and development of alternative energy technologies. CERT's mission is to support member Tribes as they develop their management capabilities and use their energy resources as the foundation for building stable, balanced self-governed economies.

CERT was asked to comment on the Indian programs under your jurisdiction, namely, the Department of Energy's Title XXVI Indian Programs. The Indian energy programs encompassed by the Department of Energy represent solid investments into the futures of not only Indian Tribes but the future of our domestic energy industry. DOE's Indian Policy continues to be a practical process of ensuring that the goals of the department and the realities of Tribes meet and sensible options emerge which benefit everyone. The Department's Indian points of contact (POCs), identified at every facility, are the tools by which this process facilitates understanding and promotes sound, effective tribal consultation.

It remains a fact that American Indian Tribes own a substantial share of our domestic energy resource base. Mineral income represents, by far, one of the largest sources of income to Tribes. In recent years, the mineral royalty income on Indian lands has reached over $156.4 million dollars with substantial periodic increases. Tribes possess potential for geothermal, hydroelectric and other energy potential. In the nonrenewable area, in rough terms, Tribes own approximately 6% of onshore oil and gas reserves, one-third of the coal resources in the West and 90% of the privately owned uranium resources. In addition, Tribal lands represent some of the largest land areas that have known resources but as yet unproven reserves. With Tribal lands representing some of the most exciting potential in energy development, especially in the West, the need to support and invest in their wise development is clear. In only the last decade, laws have been passed to ensure Indian Tribes play an active role in the development of their own resources. Coal leases have been renegotiated, oil and gas leases have taken the form of joint ventures and Tribes now routinely take an active role in resource management decisions. Traditional resource-appraisal concepts abandoned and have been replaced by economic valuation criteria increasing Tribal income by millions of dollars. Tribes are using these new funds to build government capability and infrastructure -- investing in their own futures. In purely financial terms, energy projects in Indian Country present government, Tribes and private industry with solid, productive, proven investments. The results are Tribal projects which bolster both local control and local economies. With the taxation regime in its current sate, mineral production is one of the very few lucrative tax opportunities for Tribes.

If energy programs are dramatically decreased, the potential economic fallout will be swift and sure. Indian programs related to energy development and resource development are key programs in the approach the government must take in fostering a process which makes it easier, and more administratively logical, for Tribes to control their own vast resource bases and futures. Energy programs are programs which particularly fall under the rubric of federal trust responsibility, a responsibility entrusted to all federal departments, because they so intricately affect Tribal lands and natural resource bases. The Council of Energy Resource Tribes has identified the following as opportunities to improve Indian energy programs and approach --

1. The need to build a core Indian Energy Policy and manage satellite programs currently funded in synchronicity with our national energy policy. DOE has included as part of its primary mission -- science and technology development, safeguarding national security, cleaning up environmental legacy of Cold War, encouraging affordable, sustainable and productive energy, and advancing alternative and renewable energy technologies. Tribes have an interest in pursuing and advancing these same goals. The marketing and promotion of energy production, in whatever form it may take ranging from fossil fuels to renewables, are goals Tribes share. The functions of other government Indian energy programs, such as those lying within the Department of the Interior, often focus on the accounting of resources. The programs within Title XXVI seek to not only explore tribal options for energy production but also the marketability of such approaches which may result in significant return -- for Tribes, for local government, for the federal government. There remains a need to simplify the administrative complexity that the Department has created which is sometimes overwhelming for Tribes seeking to promote energy projects. Matching tribal and DOE priorities are difficult because DOE is so large and the Indian programs based on categorical program boundaries which increase costs for both Tribal and federal government. The time for Indian set aside block grants has arrived where Tribes who are interested in an energy project can "one stop shop" and receive technical and grant assistance and be assured that their project is being considered by all relevant programs.

2. Tribes have been vocal in expressing their need for time and assistance in developing viable energy proposals. Because projects require technical expertise up front and throughout the projects, small planning grant program and technical assistance program is strongly advisable. Technical assistance could be provided regarding regionally appropriate technologies, i.e., hydropower and biomass in the Pacific Northwest; windpower in the upper Midwest; and solar power in the Southwest. Technically-specific advisors could be available to focus on particular areas of energy and provide technical assistance to Tribes. This approach was successfully used by the Western Area Power Administration which provided targeted technical assistance to their municipal and rural utility customers. And, more detailed on-site debriefings could be provided to Tribes unsuccessful in initial energy project applications to aid them to rewrite their proposals, especially in the area of technical advice.

Suggested Special Line Item Appropriations

Small Planning Grant Program FY 1996 Suggested Appropriations	**$ 1.5 million**
Technical Assistance Program FY 1996 Suggested Appropriations	**$ 500,000**

As a collary issue, CERT would strongly advise that the Department's current support of internships, designed to address the desperate need to develop in-house tribal expertise, be continued at every level, especially in the areas of energy conservation and renewable energy efforts and technologies.

3. The need to fund Indian energy projects at increased levels is great. Energy production represents one of the most productive, and proven, investments in Indian Country and for the nation as a whole.

4. There remains a desperate need to respond to the overwhelmingly expensive energy consumption on reservations. Ironically, once-owned tribal resources are utilized to generate electricity yet tribes still pay some of the highest utility rates in the nations, due to their rural locations, housing built to use primarily electricity or propane, poor or no representation on local electric co-op boards. Because of this economic drain, on an individual and governmental basis, are limited in their economic growth. Also, due to their socioeconomic status and geographic realities, Tribes require opportunities to look into alternative energy potential as well as generating electricity for themselves. *The Council of Energy Resource Tribes urges Congress, at this time, to make the following considerations in preparing appropriations legislation for FY 1996:*

DOE Indian Programs Funding Levels and Recommended Appropriations

Energy Policy Act Title XXVI Indian Program		
FY 1995 Appropriations		$ 1.5 million
FY 1995 Special Appropriations		
Tazimina Project	$ 3.4 million	
Navajo Transmission Project	$ 6.6 million	
FY 1996 Budget Request		$ 2.970 million
FY 1996 CERT RECOMMENDED APPROPRIATIONS		$ 12.970 million*

(* Recommended appropriations includes additional $10 million for Navajo Transmission Project for FY 1996)

Fossil Energy Programs	
Native American Technology Transfer Program	
FY 1995 Appropriations	$ 733,000
FY 1996 CERT RECOMMENDED APPROPRIATIONS	$ 1 million
Oil and Gas Management/Oil and Gas Environmental Management Training Program	
FY 1995 Appropriations	$ 40,000
FY 1996 CERT RECOMMENDED APPROPRIATIONS	$ 500,000
Exploration and Drilling Program	
FY 1995 Appropriations	$ 3.7 million
FY 1996 Budget Request	$ 4.6 million
FY 1996 CERT RECOMMENDED APPROPRIATIONS	$ 6 million
Civilian Radioactive Waste Management Program	
FY 1995 Appropriations	$ 535,000
FY 1996 CERT RECOMMENDED APPROPRIATIONS	$ 1 million
Environmental Management Programs	
Office of Public Accountability (Indian Related Activities)	
FY 1995 Appropriations	$ 11.352 million
FY 1996 CERT RECOMMENDED APPROPRIATIONS	$ 20 million
Office of Environmental Restoration: Oversight Agreements with State of Idaho and Shoshone-Bannock Tribes	
FY 1995 Appropriations	$ 1.6 million
FY 1996 CERT RECOMMENDED APPROPRIATIONS	$ 2 million

Department of Energy Indian Programs - Title XXVI

DOE's Indian energy program is authorized under Title XXVI, Indian Energy Resources, of the Energy Policy Act of 1992. DOE, in consultation with the Department of the Interior, has established and implemented an Indian program for Tribes to pursue energy self-sufficiency and promote the development of a vertically integrated energy industry for Indian reservations. The DOE Indian programs, under authority of sections 2603 and 2606 of the Energy Policy Act of 1992, are administered through DOE's Energy Efficiency and Renewable Energy and Fossil Energy program offices as well as the Energy Information Administration. This program provides feasibility monies to Tribes to develop options for and encourage adoption of energy efficiency and renewable energy projects. FY 1994 funds have been committed to 18 grants awarded to Tribes. Projects include installation of hydroelectric turbine generators, residential energy efficiency projects, installation of photovoltaic panels, wind resource feasibility studies, connecting natural gas wells to distribution system, and feasibility studies of establishing tribal utilities. As a special project, the program has funded an innovative projects, the Tazimina hydroelectric project near Iliamna, Alaska, a 700 kw run-of-the-river hydroelectric facility being cost-shared with the State of Alaska. One-time funding of $3.4 million, covered by FY 1995 appropriations, will be combined with $5 million from the State of Alaska to support this project. The Navajo Transmission Project, initially funded at $6.6 million, is another example of the effectiveness of this program as well as the readiness of Tribes to actively develop, manage and market their own energy resources.

These projects not only increase tribal energy programs at the reservation level but do so in the area as well as provide opportunities to Tribes to leverage funds and work with local communities to solve common problems. The cost effectiveness of these projects benefit Tribes by developing infrastructure and additional tax opportunities and also benefit surrounding communities by providing additional electricity, employment, increased tax base, and decreased social welfare dependence. Years of experience with the Department and with the Indian energy business has illustrated to CERT that tribal energy projects reduce domestic dependence on foreign imports, increase the tax base for Tribes, local and federal government, and for every dollar expended, ten dollars is returned (not counting royalty income or private return). In terms of technical assistance provided, CERT has found that for every dollar of technical assistance provided there is a six dollar return to a Tribe. Clearly, the investment made in tribal energy projects are investments which translate into tangible and intangible returns for Tribes, surrounding communities, the energy industry and the government. Had additional funding been available, other technically-sound projects which were submitted could have been funded, including projects in the following areas: geothermal, cogeneration plants related to wood waste and wastewater treatment facilities, utility authority, surveys of renewable energy, wind projects and power transmission facilities.

Fossil Energy Program

In FY 1995, DOE will be spending $733,000 on the Native American Technology Transfer Program. $100,000 of these funds will to go to study electrical and thermal energy service options to remote locations. Remaining funds will be used to fund one or two projects to demonstrate small atmospheric fluidized-bed combustion systems and/or coalbed methane-fired fuel cell systems for remote Native American communities. These demonstrations will provide heating and/or electricity for tribal populations as well as promote technologies attractive for export. The program is also working with Tribes to manage their own oil and gas as well as environmental compliance of oil and gas activities on Indian lands. Funds have been earmarked for a training program for Tribes at the Naval Petroleum Reserve at Casper, Wyoming. This year, money has been appropriated for tribal participation in DOE Fossil Energy's Exploration and Drilling program. Continued tribal participation and training is absolutely crucial in areas of exploration and drilling on Indian lands or affecting tribal or Indian oil and gas interests and resource management. In short, Tribes require more -- more training, more planning opportunities, more well thought out mineral and attendant environmental management programs that affect day-to-day operations, more access to higher levels of technical advice and training.

Environmental Management and Civilian Radioactive Waste Management Tribal Programs

Civilian Radioactive Waste Management Program

This program is supporting efforts to assist implementation of the Nuclear Waste Policy Act and focusing on discussions and meetings regarding radioactive waste management issues concerning Indian Tribes. The National Indian Nuclear Waste Policy Committee has been formed and Tribes have, and will, participate in research and regulatory-related issues involving spent nuclear fuel and radioactive waste transportation and storage issues, including developing a model tribal transportation regulatory code. Workshops and discussions continue regarding radiological emergency response and participation in Yucca Mountain stakeholders meetings.

Environmental Management Program

Office of Public Accountability (EM-5) working with Tribes located near or adjacent to DOE sites or along transportation corridors used for shipping hazardous waste by DOE. The Department is working with Tribes to provide resources necessary to build core environmental management programs as well as enhance Tribal capacity to interact effectively with the Department. The ways in which Tribes, across the nation, are affected by DOE activities, ranging from environmental reclamation activities to transportation issues, are expansive and complex. The future looks to become even more complex as the Department's own programs are only now approaching their maturity. As the programs and projects become more mature and more encompassing, especially as the entire environmental picture has yet to become focused, the need for more and more technical expertise and training will become dramatic for affected Tribes. Environmental Management is also providing assistance to Tribes for oversight projects which are to assure Tribes, located adjacent to or affected by DOE federal facilities, that their health, safety, environment , as well as cultural and natural resources, are protected. For example, the Shoshone-Bannock Tribes were provided a grant to review documents from the Idaho National Engineering Laboratory and participate in stakeholder forums, allowing them to be informed of the direction and progress of the EM program and assure their interests are protected. The program is also funding oversight projects involving the DOE Hanford Reservation and affected Tribes as well as the DOE Los Alamos National Laboratory and affected Pueblos. The Department is additionally working with such Tribes and their organizations, like the Council of Energy Resource Tribes, the National Congress of American Indians, the National Tribal Environmental Council, the American Indian Science and Engineering Society and Americans for Indian Opportunity on these and other projects. These projects are designed to provide Tribes with assistance involving the issues and problems confronted when cross-jurisdictional and intra-departmental issues arise regarding federal facilities and their management as well as explore options to ensure effective tribal participation.

TUESDAY, MARCH 28, 1995.

BIOFUELS AND MUNICIPAL SOLID WASTE R&D

WITNESS

DR. DONALD L. KLASS, PRESIDENT, BIOMASS ENERGY RESEARCH ASSOCIATION

Mr. MYERS. Dr. Donald Klass, President of Biomass Energy Research Association.

Dr. Klass, your prepared statement will be a part of the record. You may proceed as you like for the next five minutes.

Mr. KLASS. Thank you, Mr. Chairman.

Members of the subcommittee, Mr. Chairman, for approximately 25 years there has been general agreement among Republican and Democratic Members of Congress that it is appropriate for the Federal Government to make a relatively modest investment in the development of biomass energy. During this period, the contribution of biomass energy to U.S. energy demand almost doubled to the point where it now meets about 4 percent of our total energy needs.

Many analysts believe the third oil shock is just around the corner because of instability in several oil producing countries and in U.S. dollar exchange rates. Biomass energy can impact these problems. As I have stated so many times in the past to this committee, biomass energy is the only indigenous renewable energy resource capable of displacing substantial amounts of coal, natural gas, and oil which alone is responsible for over 40 percent of our trade deficit.

Without belaboring the energy security, environmental, and economic benefits of biomass energy utilization, biomass energy research is a program that is on the verge of producing results capable of making significant incremental contributions to energy demand and to the displacement of fossil fuels.

BERA's members and board of directors realize the large Federal budgetary reductions that are essential if we hope to gain control of our economy. But in view of the importance of biomass energy, we urge the committee to sustain funding for its continued development in accordance with our recommendations. Specifically, BERA recommends that $53 million be appropriated for biofuels research and development and that $28 million be appropriated for industry cost shared scale-up and demonstration projects using best available technology in fiscal year 1996.

Our detailed recommendations presented in our statement comprise a balanced program of feedstock production and conversion research and technology transfer to the private sector with emphasis on end uses such as alternative liquid transportation fuels, advanced power generation technologies, and innovative municipal sold waste disposal energy recovery systems having superior environmental benefits.

We also recommend that carefully selected, industry cost shared, scale-up projects shown by the feasibility studies initiated last year to be both economically and technically feasible be continued in fiscal year 1996.

Considerable progress was made in fiscal year 1995 by the Department of Energy to transfer research results to the private sector by the development of several cooperative research and development agreements, or CRADAs, and the continuation of the scale-up demonstration projects. The BERA board of directors recommends that at least one new project be selected by DOE for scale-up in fiscal year 1996.

Whatever conversion technology is chosen by DOE, it should be integrated with a 1,000 acre minimum dedicated biomass feedstock production system that uses the advanced technology already developed in this program. These projects should be in addition to the medium-Btu gasification project in Hawaii; NREL's fuel ethanol process under development in the process-development unit in Golden, Colorado; the advanced medium-Btu gasification process for power production scheduled for implementation in Burlington, Vermont; and the CRADAs between DOE and industry already in progress.

A total appropriation of $28 million is recommended by BERA for the scale-up demonstration projects for the Offices of Transportation, Utility and Industrial Technologies. Detailed analysis of DOE's fiscal year 1996 funding request for biofuels energy systems shows line items under the climate change action plan initiatives totalling $31.126 million. These initiatives can lead to industry cost shared scale-up work in fiscal year 1996 in accordance with our recommendations, but we would like to caution that the projects chosen for funding should not be those that industry has already perfected and commercialized, such as, landfill gas recovery and utilization.

In addition, we strongly urge that the majority of federally-funded biofuels research be conducted outside DOE's national laboratories. While it is desirable for the national laboratories to coordinate DOE-sponsored research activities, support for independent U.S. scientists and engineers and industry and academia will encourage commercialization of emerging technologies and serious consideration of innovative approaches. It will also assist in the professional development and expertise of a broad and diverse group of researchers committed to the advancement of biomass energy technology and alternative fuels.

Finally, DOE's multiyear biofuels program plan was updated in fiscal year 1993. We recommend that the plan be updated at least every two years and that DOE be directed to supply the committee with an updated program plan within 120 days.

Thank you very much.

Mr. MYERS. Thank you, Dr. Klass.

[The statement of Mr. Klass follows:]

Statement of Dr. Donald L. Klass, President
Biomass Energy Research Association
On Department of Energy FY 1996 Budget Appropriation

Submitted to the House Committee on Appropriations
Subcommittee on Energy and Water Development

March 28, 1995

This statement pertains to DOE's appropriation request for Biofuels Energy Systems.

I am Donald Klass, President of the Biomass Energy Research Association (BERA), a non-profit association headquartered in Washington, D.C. BERA was founded in 1982 by biofuels researchers and companies that are conducting biofuels research. Our objectives are to promote education and research on renewable biomass energy and waste-to-energy systems that can be economically utilized by the public, and to serve as a source of information on policies and programs for our members and industry.

For approximately 25 years, there has been general agreement among Republican and Democratic members of Congress that it is appropriate for the Federal Government to make a relatively modest investment in the development of biomass energy. During this period, the contribution of biomass energy to U.S. energy demand almost doubled to the point where it now supplies about 4% of our total energy needs. Many analysts believe the Third Oil Shock is just around the corner because of instability in several oil-producing countries and the U.S. dollar's exchange rates. Biomass energy can impact these problems. As I have stated so many times in the past to this Committee, biomass energy is the only indigenous renewable energy resource capable of displacing substantial amounts of coal, natural gas, and oil, which alone is responsible for over 40% of our trade deficit. Without belaboring the energy security, environmental, and economic benefits of biomass energy utilization, biomass energy research is a program that is on the verge of producing results capable of making significant incremental contributions to energy demand, and to the displacement of fossil fuels. BERA's members and Board of Directors realize that large Federal budgetary reductions are essential if we hope to gain control of our economy. But in view of the importance of biomass energy, we urge the Committee to sustain funding for its continued development in accordance with BERA's recommendations.

Specifically, BERA recommends that $81 million be appropriated for biofuels research and development, and industry cost-shared scale-up and demonstration in FY96. The highlights of BERA's recommendations for FY96 are:

- A balanced research program of feedstock production, biochemical and thermochemical conversion, and technology transfer.
- $53 million for research and $28 million for industry cost-shared, scale-up and demonstration projects using best available technology.
- $10 million for industry cost-shared scale-up of integrated biomass production (at least 1,000 acres per site) and conversion.
- $10 million for industry cost-shared demonstration of electric power generation with biomass fuel.
- $5 million for operation of NREL's process development unit for production of fuel ethanol from low-cost cellulosic feedstocks.
- $3 million for industry cost-shared demonstration of advanced municipal solid waste conversion.
- $11 million for technology transfer and commercialization activities managed by DOE's Regional Biomass Energy Program.
- Updating the multiyear program plan for Biofuels Energy Systems.

Regarding specific DOE budget categories, BERA recommends that funding be allocated in the following manner:

Office of Energy Efficiency and Renewable Energy		Recommended Budget	
	Area	Research	Scale-Up/Demo
Transportation Technologies	Feedstock Development	$ 6,000,000	$10,000,000
	Biochemical Conversion	10,000,000	5,000,000
	Thermochemical Conversion	8,000,000	
Utility Technologies	Thermochemical Conversion	12,000,000	
	Systems Development		10,000,000
Industrial Technologies	Municipal Solid Wastes and Chemicals	3,000,000	3,000,000
Technical and Financial Assistance	Regional Programs	11,000,000	
All Offices	Capital Equipment	3,000,000	
		$53,000,000	$28,000,000
		$81,000,000	

BERA RECOMMENDS $53.0 MILLION FOR RESEARCH AND $28.0 MILLION FOR CONTINUATION OF INDUSTRY COST-SHARED, INTEGRATED, BIOMASS PRODUCTION-CONVERSION PROJECTS FOR FISCAL 1996

A Balanced Program of RD&D and Technology Transfer

Our recommendations comprise a balanced program of feedstock production and conversion research and technology transfer to the private sector with emphasis on end uses such as alternative liquid transportation fuels, advanced power generation technologies, and innovative municipal solid waste disposal-energy recovery systems having superior environmental benefits and minimal emissions. We also recommend that carefully selected, industry cost-shared, integrated biomass production-conversion scale-up projects shown by the feasibility studies initiated last year to be both economically and technically feasible be continued in fiscal 1996.

Considerable progress was made in fiscal 1995 by DOE to transfer research results to the private sector by the development of several Cooperative Research and Development Agreements (CRADAs), the continuation of the scale-up/demonstration gasification project (Hawaii), the dedication of the process development unit (PDU) for fuel ethanol (Golden, Colorado), and the initiation of 11 feasibility study projects to help select new integrated biomass production-conversion technologies for scale-up/demonstration. We strongly recommend that those projects which these studies indicate are technically and economically feasible be continued with industry cost-sharing in fiscal 1996. The BERA Board of Directors recommends that at least one new project be selected by DOE for scale-up in fiscal 1996 from the following conversion technology options: Methanol Production by Best Available Thermochemical Gasification Technology, Fuel Ethanol Production by Best Available Biochemical Technology, Electric Power Production from High-Efficiency Biomass-Fueled Gas Turbines, Municipal Solid Waste Disposal-Energy Recovery by Best Available Technology, Methane Production from Waste Biomass by Best Available Biological Gasification Technology, Liquid Fuel Production by Best Available Biomass Pyrolysis Technology, and Biomass Gasification-Fuel Cell Cogeneration. **Whatever conversion technology is chosen by DOE for processing virgin biomass feedstocks, it should be integrated with a 1,000-acre-minimum, dedicated biomass feedstock production system that uses the advanced technology already developed in this program.** These projects should be in addition to the medium-Btu gasification demonstration project in Hawaii, NREL's fuel ethanol process under development in the PDU in Golden, Colorado, the advanced medium-Btu gasification process for power production scheduled for implementation in Vermont, and the CRADAs between DOE and industry already in progress. A total appropriation of $28,000,000 is recommended by

BERA for these scale-up/demonstration projects as indicated below for the Offices of Transportation, Utility, and Industrial Technologies.

Detailed analysis of DOE's FY96 funding request for Biofuels Energy Systems shows line items under the Climate Change Action Plan initiatives of $20 million for the 11 feasibility study projects and $9.226 million for commercialization of industry cost-shared, integrated feedstock-power generation systems in the Utility Sector, and $1.9 million for methane recovery from land-fills and $1.984 million for advanced turbine systems fueled by biogas in the Industry Sector. These initiatives can lead to industry cost-shared scale-up work in FY96 in accordance with BERA's recommendations, but we would like to caution that the projects chosen for funding should not be those that industry has already perfected and commercialized such as medium-Btu gas recovery and utilization from landfills or those that industry is already funding on its own.

In addition, BERA strongly urges that the majority of federally funded biofuels research be conducted outside DOE's national laboratories. While it is desirable for the national laboratories to manage and coordinate DOE-sponsored research activities, support for independent U.S. scientists and engineers in industry and academe will encourage commercialization of emerging technologies and serious consideration of innovative approaches. It will also assist in the professional development and expertise of a broad and diverse group of researchers committed to the advancement of biomass energy technology and alternative fuels.

The following represents BERA's specific recommendations on the research areas and funding levels we urge you to include in the fiscal 1996 program.

OFFICE OF TRANSPORTATION TECHNOLOGIES

Biomass Production. Land-based biomass grown and harvested specifically for liquid biofuels represents a long-term approach to energy plantations that can supply large amounts of fossil fuel substitutes. Considerable progress has been made on the efficient production of short-rotation woody crops, and on the growth of herbaceous species for energy and fuel applications. In addition, research on tissue culture techniques and the application of genetic engineering methods to low-cost energy crop production have shown promise. This research should be continued as an integral part of the biofuels research program to develop advanced biomass production methods to meet expanding biomass energy utilization in both the transportation and power production sectors. Conventional production methods are insufficient to supply sustainable biomass energy over the long term. BERA recommends that $6,000,000 be directed to continue biomass production research.

Scale-Up. BERA also recommends that industry cost-shared, scale-up projects chosen by DOE of at least 1,000 acres in size be started to initiate development of large-scale, commercial energy plantations in which dedicated energy crops are grown and harvested for use as biomass resources. After the plantations are established, conversion facilities should be added to develop integrated biomass production-conversion systems. These projects should be strategically located and should utilize the advanced biomass production methods developed from the research conducted to date. Successful completion of this work will help biomass energy attain its potential by providing the data and information needed to design, construct, and operate new, multi-quad energy supply systems for both the manufacture of fossil-fuel substitutes and power production. BERA recommends that the first year of this scale-up effort be funded at $10,000,000.

Biochemical Conversion. Application of the rapidly advancing field of biotechnology to the conversion of low-cost biomass to liquid fuels such as ethanol has made great progress and should be continued. The successful genetic engineering of the bacteria *Zymomonas mobilis* so that this organism can now ferment xylose to ethanol at the same time as glucose is expected to result in a 10% reduction in the cost of fuel ethanol. Process evaluations by experts have identified key opportunities for early pay-backs with biochemical conversion systems, and new genetic engineering and other emerging biological approaches have made significant advances. Future research should be concentrated on conversion of low-cost feedstocks by high-yield, acid- and enzyme-catalyzed hydrolysis processes, on the development of organisms that can metabolize the hemicellulose components in the feedstocks, and on the utilization of the lignin fractions as octane enhancers and chemicals.

Research is also recommended on the use of genetically engineered bacteria that can produce ethanol from low-cost feedstocks at higher rates and yields and on innovative processes for the production of butyl alcohols from biomass for conversion to methyl-t-butyl ether (MTBE) and ethyl-t-butyl ether (ETBE) gasoline additives.

Considerable progress has been made by U.S. researchers to develop biodiesel fuels from natural triglycerides produced by biochemical processes that occur within biomass. This research should be continued with emphasis on the reduction of biodiesel costs and on emissions and performance characteristics of biodiesel to satisfy the requirements of the EPA and engine manufacturers.

BERA recommends that $10,000,000 be directed to continue biochemical conversion research for transportation applications.

Scale-Up. BERA recommends that $5,000,000 be directed to operate NREL's PDU for production of fuel ethanol from low-cost cellulosics by the simultaneous saccharification-fermentation process. This plant is being operated with a CRADA partner to obtain scale-up data, and numerous arrangements are in place with various industries and communities across the Nation to develop business plans that can result in widespread use of fuel ethanol-from-low-grade-biomass technology. Successful operation of the PDU will establish the technical feasibility of the process and help to confirm that fuel ethanol can be manufactured from low-cost feedstocks at prices competitive with petroleum-based motor fuels. The capital equipment appropriation of $3,000,000 recommended by BERA should be utilized for PDU modifications if needed.

Thermochemical Conversion. Thermochemical conversion research to produce clean-burning, liquid transportation fuels at competitive costs is the prime target of this program component. Laboratory- and pilot-scale research has established the technical feasibility of several advanced liquefaction processes, and basic research has improved our understanding of the mechanisms of conversion. Direct conversion of wood and herbaceous feedstocks via pyrolysis to liquid fuels and their upgrading by advanced catalytic processes to transportation fuels show promise. Continued research is expected to increase the overall liquid yields to the point where the gasoline costs are competitive with those of petroleum-based fuels. Thermochemical liquefaction of low-grade biomass for the production of low-cost fuel ethanol, mixed alcohols, and ethers for use as fuels and octane enhancement also shows promise and merits investigation. BERA recommends that $8,000,000 be directed to continue thermochemical conversion research for transportation applications.

OFFICE OF UTILITY TECHNOLOGIES

Electric Power Production. Currently, there are about 8,000 MW of on-line electric power capacity fueled with biomass. Development of advanced gasification processes has significant economic and environmental benefits that could lead to further expansion. Continued research on the thermochemical gasification of biomass has resulted in the development of advanced process designs and reactor configurations that maximize product yields and provide optimum product distributions. This work has been performed at the laboratory and pilot scales. Direct coupling of advanced biomass gasifiers to steam-injected gas turbines (STIGS) should be evaluated as a potential, high-efficiency power generation system. An alternative that should also be evaluated is the integration of high-yield biomass pyrolysis liquefaction processes with power generation either in STIGS or combined-cycle STIGS. Research should also be continued to develop reliable hot-gas clean-up methods that can be used with advanced gasification processes. BERA recommends that $12,000,000 be appropriated for this research.

Systems Development. In addition to power production via medium-Btu gasification, which is now at the demonstration stage in Hawaii, at least one new industry, cost-shared demonstration project selected by DOE from those recommended by BERA should be started in FY96. BERA recommends that $10,000,000 be appropriated for the first year of this effort.

OFFICE OF INDUSTRIAL TECHNOLOGIES

Municipal Solid Wastes. In combustion research, a need still exists for improved solid waste combustors that meet environmental requirements and cost goals. Research should be focused on systems that can be used for economic disposal of municipal solid wastes in small communities. Research is also needed to reduce the emissions of solid waste disposal processes and to characterize the specific pollutants produced under specific operating conditions. Other subjects needing additional research are the monitoring and control of combustion effluents, metal behavior in ash, and characterization of changing waste streams. Biological gasification of wastes is unique in that the process can directly produce methane, the major fuel component of natural gas, from the full range of low-cost biomass. Research is needed to develop novel systems that permit higher feedstock concentrations and smaller reactor volumes, and therefore lower capital costs. This research is expected to lead to practical methods for economic production of methane from low-cost biomass. And in the case of feedstocks such as municipal wastewaters, low-cost, integrated biomass production-waste stabilization-methane production systems are expected to evolve from continued research.

Chemicals. A wide range of petrochemical substitutes, such as solvents, adhesives, plastics, packaging materials, and chemicals such as organic acids can be manufactured from biomass residues. Research should be continued to develop advanced processes that utilize both thermochemical and biochemical conversion methods as well as advanced physical separation and processing techniques.

BERA recommends that $3,000,000 be directed to continue research on both municipal solid waste conversion and disposal and chemicals from waste biomass and residues.

Demonstration. BERA also recommends that one demonstration project should be chosen by DOE from those recommended by BERA and initiated in FY96, and that $3,000,000 be provided to conduct this industry cost-shared work.

OFFICE OF TECHNICAL AND FINANCIAL ASSISTANCE

Regional Biomass Energy Programs. The Regional Programs established by Congress in 1983 are implemented through five separate regions located in the Southeast, Northwest, West, Great Lakes, and Northeast. These programs have been important in establishing individual state biomass programs, and in stimulating technology transfer and the development and commercialization of the biomass energy industry in the private sector. The Regional Program activities have created awareness and a positive image for biomass energy while providing significant environmental enhancement and creating new jobs - especially in rural areas. Activities are typically highly leveraged with program participants adding two to four times federal dollars. One example is the development and installation of low-cost, anaerobic lagoons for treatment of livestock waste and generation of methane. This technology is usable in hundreds of applications and offers combined energy recovery and waste treatment, while capturing and using methane that would otherwise contribute to global climate change.

BERA is particularly interested in promoting the transfer of commercial and near-commercial biomass technology to the private sector, and feels that DOE needs to place more emphasis on this effort. BERA also believes there should be better cooperation and coordination between DOE's Regional Program and Research Program managers to help achieve this objective. The five Regional Programs should be maintained to continue development of the biomass industry. BERA urges that $11,000,000 be provided to continue and expand the work of the Regional Programs.

BERA also recommends that DOE be directed to report back to the Committee within 120 days on efforts to strengthen the coordination between these two program components and to improve technology transfer to the private sector.

ALL ENERGY EFFICIENCY AND RENEWABLE ENERGY OFFICES

Program Planning. DOE's multiyear biofuels program was updated in FY 1993. BERA recommends that the plan be updated at least every two years, and that DOE be directed to supply the Committee with an updated program plan within 120 days.

TUESDAY, MARCH 28, 1995.

NUCLEAR WASTE DISPOSAL PROGRAM AND RENEWABLE ENERGY PROGRAMS

WITNESS

EMMIT GEORGE, COMMISSIONER, IOWA STATE UTILITIES BOARD, REPRESENTING THE NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS

Mr. MYERS. Commissioner Emmit George, Iowa State Utilities Board today representing the National Association of Regulatory Utility Commissioners.

Mr. George, your prepared statement will be placed in the record and you can proceed for the next five minutes as you like.

Mr. EMMIT GEORGE. Thank you, Mr. Chairman. I also chair the NARUC Subcommittee on Nuclear Issues and Waste Disposal. I appear to testify today on a subject that is not as glamorous as some that I have heard from the back of the room, but certainly one I think that is critical.

Ratepayers interest in the nuclear waste management disposal program is twofold. First, our ratepayers provide the primary source of revenue for the nuclear waste disposal program. To date, they have contributed or at least obligated to contribute $11 billion. The compelling interest as a regulator on this issue is the cost effectiveness and the success of the program. To date, DOE has not accepted any commercial fuel for disposal or storage.

Secondly, the effective waste management and disposal is important to minimize life cycle expenses for nuclear facilities existing today. Today, the country's electricity is generated substantially by nuclear generators. The percentage is approximately 20 percent nationwide and varies greatly from State to State. But prompted by the concerns facing the nuclear generators in the country, NARUC passed a resolution in November of 1994, setting forth legislative policy principles in an attempt to improve the Federal nuclear waste disposal program including ways to adequately fund the program.

These policy principles are the focus of my remarks. This is not the first time that NARUC has appeared before a subcommittee. A predecessor of mine, Edwina Anderson, a commissioner from Michigan, who was the first chair of this subcommittee, appeared in 1987. And much of her testimony could have been repeated today and been effective and appropriate.

She made statements such as long overdo action, congressional action is mandatory. She made that statement in 1987. She suggested that the proposals that were being offered in 1987 for correcting the waste program difficulties such as a moratorium, a formation of an investigating commission, were inappropriate and should not be considered. She suggested that the insightful evaluation and mid-course corrections were passed and that the program needed major surgery in order to save the process.

I would echo those comments. I think they are appropriate. The circumstance now is that for nuclear generators, the problem of storing this spent fuel has come to a head. To date, five utilities have been required to develop an on-site storage system outside the storage pool. That increases the cost in the sense of developing that on-site storage and, as well, will be a delay, or cause a delay with regard to the decommissioning of plants as they close. A major concern is the cost.

Today, Yankee Rowe is the only facility in the country is closed. However, the fuel is still on site and in the pool and costing $10 million per year to store and to secure. NARUC believes the DOE must act on its responsibility to accept fuel by January 31, 1998. Failure to do so will harm ratepayers who bear the additional cost at reactor sites.

The reason for NARUC's position today is similar to the conditions that existed in 1987 when we appeared here. We look at the projections for 30 percent of the Nation's spent nuclear fuel pools reaching capacity by 1998; 80 percent by 2010. For nuclear reactors that have already shut down, the decommissioning cost will skyrocket. It is our feeling that storage at more than 70 de facto interim sites is inappropriate.

In concluding, I would say that funds have been paid by utility ratepayers for services or for the disposal of spent fuel, and to date no fuel has moved. We think this has come to a crunch. I will conclude.

Mr. MYERS. Well, thank you very much, Commissioner George, for your fine testimony.

[The statement of Mr. George follows:]

BEFORE THE
UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

TESTIMONY OF THE HONORABLE EMMIT J. GEORGE, JR., COMMISSIONER
IOWA STATE UTILITIES BOARD

ON BEHALF OF THE
NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS
1102 INTERSTATE COMMERCE COMMISSION BUILDING
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FISCAL YEAR 1996 APPROPRIATIONS FOR THE
DEPARTMENT OF ENERGY'S NUCLEAR WASTE DISPOSAL PROGRAM

MARCH 28, 1995

Chairman Myers and Members of the Subcommittee:

Good afternoon. I am Commissioner Emmit George of the Iowa State Utilities Board. I am also Chairman of the National Association of Regulatory Utility Commissioners' (NARUC) Subcommittee on Nuclear Issues-Waste Disposal. I am here to testify on behalf of the NARUC, and am grateful to have the opportunity to share NARUC's views regarding fiscal year 1996 funding for the Department of Energy's (DOE) nuclear waste disposal program.

I. Ratepayer Interest in the Nuclear Waste Management and Disposal Program

The issues related to nuclear waste disposal and interim storage are of deep concern to utility ratepayers and utility regulators for two reasons. First, ratepayers are the primary source of revenue for the Nuclear Waste Fund and state regulators, therefore, have a compelling interest in the cost-effectiveness and success of the waste disposal program. Second, effective waste management and disposal is important in order to minimize the life cycle costs of existing nuclear plants which comprise 20 percent of the electric energy produced in the United States. Increases in costs associated with nuclear waste storage and disposal increase the costs of nuclear energy which, in turn, increases energy costs to consumers.

For these reasons, in November 1994, the NARUC adopted a resolution setting forth a set of legislative policy principles to improve the Federal nuclear waste disposal program, including ways to adequately fund the program. Included in this document are policy principles related to the funding aspect of this program. These policy principles are the focus of my remarks.

II. Background

Over the years, the NARUC has expressed concerns that the DOE has not formally accepted its responsibility to accept spent fuel according to contracts entered into pursuant to the Nuclear Waste Policy Act (NWPA) beginning on January 31, 1998. The NARUC believes the DOE must act on its responsibility to begin accepting spent nuclear fuel on January 31, 1998, and that failure to do so will harm ratepayers who must bear the additional costs of at-reactor, out-of-pool storage above and beyond the one-mill per kilowatt hour fee to the Federal government. It is estimated that 30 percent of the nation's spent nuclear fuel pools will reach capacity by 1998 and approximately 80 percent of the nation's pools will reach capacity by the year 2010 -- the earliest year that the DOE expects to begin receiving spent fuel for disposal in a repository. In addition, for nuclear reactors that have already shut down, continued at-reactor storage adds substantial costs to nuclear plant decommissioning. These costs occur because these plants cannot complete their decommissioning until all spent fuel is removed from pool storage. Storing fuel at more than 70 de facto interim storage sites around the country was not intended when Congress passed the NWPA and is not acceptable public policy.

For these reasons, the NARUC is supportive of constructing a centralized, interim storage facility so that utilities and their ratepayers -- who continue to contribute to the Nuclear Waste Fund -- receive the services for which they have been paying. Providing for an interim storage facility, which is supported by the DOE, state commissions, utilities, and many leaders in the Congress, will require a dedicated source of funding as originally intended with the establishment of the Nuclear Waste Fund.

III. The Nuclear Waste Fund Unobligated Balance

Ratepayer funds paid into the Nuclear Waste Fund are not being used for their intended purposes, impeding progress of the high level waste disposal program. Although ratepayers have paid more than $9 billion into the Nuclear Waste Fund, access to and effective use of that fund is constrained by the Federal budgetary and appropriations processes. To date, $4 billion remains unobligated from the Nuclear Waste Fund due to Congressional budget enforcement procedures that are contained in the Congressional Budget Act of 1974 and Balanced Budget and Emergency Deficit Control Act of 1985. It is estimated ratepayers will contribute an additional $600 million to the Nuclear Waste Fund during FY 1996. These additional funds must be used for the nuclear waste disposal program. Misuse of these funds can no longer be tolerated and must be remedied.

Correcting the problems associated with the nuclear waste disposal program is directly linked to the availability of current receipts from the Nuclear Waste Fund. For this reason, NARUC believes Congress should provide an exemption for the Nuclear Waste Fund from budgetary enforcement procedures. NARUC respectfully requests you work with the Budget Committee to exclude the Nuclear Waste Fund from the overall revenue base and, instead, allow the Appropriations Committees to use this fund as a truly dedicated source of funding for the nuclear waste disposal program. This is a unique program that deserves a special funding mechanism.

In addition, Congress should make the unobligated balance of the Nuclear Waste Fund available in order to effectively carry out the nuclear waste disposal program, which should include the construction of an interim storage facility. I fully appreciate the complex budgetary implications of such a proposal, but until these "dedicated" funds become available for implementing the program, I am afraid we may never see an integrated waste management system put into practice.

Some members in Congress reflect back upon the way funds have been spent on this program thus far and, with good reason, fear the balance of the Nuclear Waste Fund will be spent frivolously. For this reason, NARUC believes disbursement of these funds should remain subject to the Congressional annual appropriations process -- thereby ensuring Congressional oversight on how and where the funds are spent. NARUC has also called for fundamental program improvements to ensure funds are expended in a cost-effective manner in the future.

A final concern NARUC has with regard to program funding refers to the Department of Defense's (DoD) responsibility in supporting this program. In the future, the Congress should ensure the DoD contributes its fair share of the cost of nuclear waste disposal and pays all past debts promptly to the Nuclear Waste Fund. The DoD must share in the burden of developing a nuclear waste disposal system that will ultimately be used for the disposal of defense-related waste.

IV. Immediate Program Funding Concerns

The DOE has proposed spending $630 million in FY 1996 on the nuclear waste program, which represents a $100 million increase in activity on this program. While NARUC applauds this level of commitment, the NARUC is concerned that no funds are being requested from the Nuclear Waste Fund. Instead, the DOE has proposed dedicating the proceeds of the sale of the United States Enrichment Corporation to the nuclear waste disposal program. NARUC is concerned that this proposal will not be enacted or approved before the end of this year's appropriations process, leaving the disposal program with only the DoD's obligation of $198 million. Such an outcome would require reductions in other DOE programs necessary to fund the civilian waste program for FY 1996. The civilian waste program should not be put in competition with other DOE programs, which brings to bear the urgency in exempting the Nuclear Waste Fund from budgetary enforcement procedures.

The budgetary situation described above exemplifies the difficulties that are prevalent in our nation's high-level nuclear waste disposal program in both the short- and long-terms. Without providing a truly dedicated source of funding for this much needed program, ratepayer funds contributed to this program will continue to go unspent, and ratepayers will be burdened with added costs associated with storing spent fuel on site. By exempting the receipts of the Nuclear Waste Fund from current budgetary and spending constraints, and allowing annual ratepayer contributions to the Nuclear Waste Fund to be used for their intended purpose, the DOE's Office of Civilian Radioactive Waste Management can obtain the funds necessary to achieve a truly integrated high-level nuclear waste disposal system.

In conclusion, I urge the Subcommittee to provide the $630 million funding level requested by the DOE, and to pursue a funding strategy that ensures the timely, cost-effective obligation of future Nuclear Waste Fund receipts as well as access to the current unobligated balance of the fund.

I appreciate being given the opportunity to present NARUC's views on this most important matter.

NUCLEAR WASTE: INVENTORY AND RATEPAYER PAYMENTS BY STATE

STATE	NUMBER OF NUCLEAR UNITS	PROJECTED SPENT FUEL INVENTORY (METRIC TONS, 1998)	CURRENT LIABILITY THROUGH 12-31-94* (MILLIONS OF DOLLARS)
IL	13	5,215	$1,390.1
NC	5	1,779	$857.4
NY	7	2,192	$696.5
PA	9	2,920	$686.0
CA	6	1,603	$612.3
FL	5	1,669	$527.9
NJ	4	1,369	$496.2
VA	4	1,358	$438.3
CT	4	1,505	$404.8
AL	5	1,827	$386.3
SC	7	2,241	$381.6
WI	3	967	$327.8
MA	2	495	$300.9
IN	0	0	$269.4
GA	3	1,182	$261.7
AR	2	690	$248.0
MD	2	781	$245.2
MI	5	1,500	$241.7
MN	3	789	$239.1
OH	2	518	$228.7
IA	1	257	$186.2
TX	1	735	$180.7
TN	2	611	$167.6
VT	1	411	$146.0
NE	2	421	$132.5
MO	1	342	$130.2
LA	2	567	$128.8
ME	1	477	$121.4
OR	1	424	$104.3
AZ	3	834	$96.9
MS	1	392	$94.3
KY	0	0	$80.7
WA	1	292	$74.4
KS	1	271	$60.2
NH	1	176	$43.0
NM	0	0	$28.1
DE	0	0	$27.5
ND	0	0	$10.9
RI	0	0	$7.3
SD	0	0	$0.8
CO	1	16	$0.3
TOTAL	111	36,825	$11,062.0
FEDERAL		N/A	$27.4
INDUSTRY		N/A	$23.2
TOTAL			$11,112.6

* Total paid plus debt.
** Prepared by Jahan Selim of the Iowa Utilities Board.

Convention Floor Resolution No. 9

Resolution Regarding Guiding Principles for Legislative Changes to the Nuclear Waste Policy Act

WHEREAS, The United States Congress, in the Nuclear Waste Policy Act of 1982, as amended, directed the Department of Energy to begin accepting for disposal high level nuclear waste and spent fuel no later than January 31, 1998; and

WHEREAS, Utility ratepayers have paid over $8 billion to the Nuclear Waste Fund, serving as the almost exclusive funding source of the nation's disposal effort; and

WHEREAS, The interests of the ratepayers and the responsibilities of State regulatory commissions are served by a prudent and focused program leading to safe, timely, cost-effective and environmentally sound storage and disposal; and

WHEREAS, The fair share of the cost of defense waste disposal has not been collected; and

WHEREAS, The NARUC sees the need for fundamental improvement of the management, quality, delivery and cost-effectiveness of the federal program; and

WHEREAS, The NARUC considers the following to be critical to safe, environmentally sound, timely and cost-effective development of an integrated spent fuel management system and has stated its position on these issues in previously adopted resolutions:

a) DOE action to meet its obligation to take responsibility for spent fuel as of January 31, 1998;

b) Establishment of a comprehensive, cost-effective integrated spent nuclear fuel management system that includes centralized interim storage capability; and

c) Creation of an alternative federal budgetary mechanism for the high-level waste program; and

WHEREAS, These issues must be resolved through Congressional action; now, therefore, be it

RESOLVED, That the National Association of Regulatory Utility Commissioners (NARUC), convened at its 106th Annual Convention in Reno, Nevada, adopts the following principles to guide legislative changes to the Nuclear Waste Policy Act:

I. PRINCIPLES CONCERNING THE DOE'S OBLIGATION UNDER THE NWPA

A. The Secretary of Energy shall take title and begin taking possession and removing high-level radioactive waste and spent nuclear fuel no later than January 31, 1998.

B. The Secretary of Energy shall take possession of and remove high-level radioactive waste and spent nuclear fuel in accordance with the acceptance priority ranking as required by the contracts entered into pursuant to section 302.

II. PRINCIPLES REGARDING INTERIM STORAGE CAPABILITY

A. Congress should designate the location of one above-ground, centralized, interim storage facility for spent nuclear fuel by June 30, 1995, and such site should not be limited by the location or licensing of a permanent repository.

B. Congress should establish milestones and a set schedule for DOE relative to licensing and construction of a centralized, interim storage facility, a transportation infrastructure, and multipurpose containers and other shipping- and storage-related equipment necessary to support acceptance of spent fuel by January 31, 1998. This should include Congressional authorization of actions necessary to implement an expedited schedule for each of these activities, existing legislative and regulatory impediments notwithstanding, without compromising proper consideration of safety and environmental factors.

C. Congress should direct DOE to develop the necessary infrastructure and equipment to support and implement an increased rate of acceptance of spent fuel from reactors and shall set the statutory capacity limits on the centralized interim storage facility to efficiently, effectively and economically accommodate actual storage needs.

D. Congress should allow private efforts to proceed in the establishment of an interim storage facility and Congress should re-authorize the Office of Nuclear Waste Negotiator, whose authorizing legislation expires on January 21, 1995.

III. PRINCIPLES REGARDING PROGRAM FUNDING

A. Congress should exempt the Nuclear Waste Fund, established under section 302 of the Nuclear Waste Policy Act, from any budget enforcement procedures under current Federal budget laws. Expenditures from the Nuclear Waste Fund should remain subject to Congressional appropriations.

B. Congress should make all ratepayer funds, including those in the unobligated balance of the Nuclear Waste Fund available to the program as needed.

C. The program fee should remain at 1 mill per kilowatt hour.

D. Congress should assure that a fair share of the cost of defense waste disposal is promptly determined, and that (a) all past debts are promptly made to the Nuclear Waste Fund, and (b) full payment of defense portions is made annually in the future. Ratepayer representatives should be prominently involved in the determination of this fair share.

IV. PRINCIPLES REGARDING FUNDAMENTAL PROGRAM IMPROVEMENT

A. Congress should improve the efficiency of the licensing process of the high-level nuclear waste repository, without compromising health, safety, and environmental factors. For example, the repository license should allow for emplacement of the waste in the repository for an initial period of up to 100 years and be renewable for additional periods in order that the repository be efficiently, safely and realistically utilized. The waste should remain retrievable during at least the initial period and until it is determined that the repository may be permanently closed.

B. Congress should encourage greater private sector participation in implementing certain aspects of the federal nuclear waste program. Examples include management and implementation of the development, manufacture, demonstration, and deployment of the multipurpose container system; management and implementation of the development, licensing, construction and operation of the centralized interim storage facility and transportation system.

C. If after Congressional direction and financial support, the DOE is unable to meet effectively its goals and milestones by June 30, 1997, Congress should consider: 1) removing implementation authority and responsibility for the Civilian Radioactive Waste Management Program from the Department of Energy and locating it in a new single purpose federally chartered corporation; and 2) the ramifications of the changeover so that there will be no delay in the conduct of the program and achievement of program goals.

Sponsored by the Committee on Electricity
Adopted November 16, 1994
NARUC Bulletin No. 48-1994, pages 9-10

TUESDAY, MARCH 28, 1995.

PHOTOVOLTAICS

WITNESSES

HON. MICHAEL N. CASTLE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF DELAWARE
DR. ALLEN M. BARNETT, PRESIDENT, ASTROPOWER

Mr. MYERS. Mike, are you ready?

Mr. CASTLE. Yes, sir.

Mr. MYERS. At this time the committee will recognize our colleague from Delaware, Mike Castle, and you are going to introduce Dr. Barnett, I believe.

Mr. CASTLE. I have done it before, before this same committee, when you were the Ranking Member and Mr. Bevill the Chairman.

Mr. MYERS. Your prepared statements will be entered in the record in their entirety and you may continue as you like for the next five minutes.

Mr. CASTLE. I will be very brief. I am actually on the run. I have read his testimony, so I know what he is going to say.

I am in the midst of a crisis, but I would like to say that I have been to Dr. Barnett's place of business. I have seen what he has done. AstroPower is, in my judgment, the real thing. It is one of those programs that we have helped and made it work.

It was founded in 1983. He is the president. It is the fastest growing photovoltaics solar cell manufacturing company in the country, third largest in the U.S., second U.S.-owned, ninth in the world, and it is a very fast growing company employing people.

His technical background is incomparable, having lectured, having an engineering degree from the Carnegie Institute of Technology, and a graduate degree from the University of Illinois.

I know him to be an inventor, a technical person, a businessperson, a good community person running a heck of a good company. And I hope that you will listen to him, as obviously you have been listening to people all day, and, obviously, you are ready to listen again. He is a good person here with a good message.

Mr. MYERS. Thank you, Mike.

Mr. BEVILL. We are looking forward to hearing him.

Mr. BARNETT. Thank you for coming by, Congressman Castle.

Mr. MYERS. For the remaining five minutes, we are pleased to hear from you.

Mr. BARNETT. Great. There were three different meetings going on in his office. He attended all of them and still found time to come over here, which I certainly appreciate.

In addition to being President of AstroPower, I am Chairman of the Photovoltaic Division Solar Energy Industry Association, and I will try to be clear when I am speaking for the company and when I am speaking for the industry association.

We are the fastest growing photovoltaics company, and the Department of Energy programs have made a difference. We are an industry which includes both manufacturers and electric utilities who need help in continuing to reduce the cost and integrating into delivery systems. The industry has prepared, I think, a well-balanced budget which attracts some historic commitments of the Department of Energy both in research and development, manufacturing technology, and in utilities.

First, I would like to explain we conceived of a brand new solar cell. This is a standard cell, and we conceived there was a better way to make a solar cell. The larger one is twice as big, twice as powerful, and has less cost than the little one. This solar cell, to conceive it was 1 percent of the total price; to develop it was 9 percent more, and we were fortunate to get a manufacturing technology contract from the Department of Energy which is covering most of the last 90 percent and it has just entered the market. This total program cost $29 million, and for every Federal dollar, we have been able to attract two private dollars.

I think that is really important for this committee, important to see where we are going. The company will grow about 125 percent this year and 50 percent in people. We believe, as does the industry association, that U.S. utilities are the ideal delivery mechanism. That is the third leg of the program. How are we going to help utilities? The PV-Compact program is doing that. It is helping them get their feet wet.

But coming from a regulated environment, U.S. utilities have not figured out how to deliver this system and still make money, but we are helping them. We are helping them not only for public interest, but for self-interest because we have a strong export business. Our whole industry does. But it depends on an equally strong domestic business.

Finally, a little bit of good news. From AstroPower's point of view, we need the present contracts and programs we have, which are heavily cost-shared, to play out their course which will happen in four more years in which time we will not need government support. We also project that we will pay back the government fully through corporate income taxes in the next five years and for every year after that more than pay back the government's investment each year. We think the government's potential returns are huge.

We appreciate the support to date. We are the second largest U.S. owned and we are nervous about the number of non-U.S. owned that surround us.

Thank you, Congressmen.

Mr. MYERS. Well, thank you, Dr. Barnett, for your fine testimony.

[The statement of Mr. Barnett follows:]

AstroPower

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Photovoltaic Solar Energy

Testimony

Energy and Water Development Subcommittee on Appropriations United States House of Representatives

by

Allen M. Barnett, President
AstroPower, Inc.
&
Chairman, Photovoltaic Division
Solar Energy Industries Association

March 28, 1995

AstroPower designs, develops, and manufactures photovoltaic solar cells for the direct conversion of sunlight to electricity. AstroPower is the fastest growing photovoltaic solar cell manufacturer in the world. Our solar cell and module shipment growth was 89% in 1994. Growth of 130% is projected for 1995 for a total of 4 megawatts -- enough for 2,000 homes.

We employ 105 people in the State of Delaware and are presently adding 30 to 50 jobs per year. All of our major suppliers are in the United States. We also sell a lot of product through distribution channels, leading to more jobs in the distribution, development and assembly of solar electric systems.

AstroPower manufactures crystalline silicon solar cells which have demonstrated the high performance, efficiency, and reliability required to serve power generation markets. The remaining obstacle is cost. The cost reductions required to enter the utility power market can be achieved with AstroPower's proprietary Silicon-Film™ products. The Silicon-Film™ process leads to a high performance, low-cost solar cell for terrestrial power applications. The specific technical approach involves growing a thin polycrystalline silicon layer on a low-cost substrate. The fully mature solar cell product is designed to achieve a conversion efficiency of 18%.

AstroPower received its first small contract for the development of the Silicon-Film™ Process in June 1987. This led to the first laboratory-size Silicon-Film™ solar cells with efficiencies over 10% in that same year. Those results were followed by laboratory efficiencies of 15.7% in 1988 and commercial-size prototypes in 1989. With support from the cost-shared PVMaT program, pilot-scale manufacturing equipment began operation in 1991 and commercial-grade solar cells were fabricated in 1992.

The Silicon-Film™ process is uniquely capable of producing larger, more powerful solar cells such as the AP-225. The AP-225 is twice the size and generates twice the power of standard size silicon solar cells. The benefits of this larger product include a more efficient use of capital equipment and labor which results in a lower cost per watt of power. This new solar cell is presently in production. This solar cell was conceived and manufactured under PVMaT. ***It is a PVMaT product***. It was demonstrated as an emerging technology under the Photovoltaics for Utility Scale Applications (PVUSA) program in November 1994.

Delmarva Power and Light successfully demonstrated the use of solar power to satisfy peak electrical demand. That system uses photovoltaic generated power in a dispatchable system. This allows the owner to store the power over the course of the day and use it only to meet peak demand. This level of control makes the power generated more valuable to the owner, and assists the utility with meeting peak demand.

Several Department of Energy programs have made a difference including:

Research:

> The Thin-Film Partnership is providing support for the semiconductor device design approach for thin film crystalline silicon. This is leading to new generations of higher performance, lower-cost Silicon-Film™ products.

Manufacturing:

> The cost-shared Photovoltaic Manufacturing Technology (PVMaT) program has provided valuable assistance for manufacturing scale-up. This program has made the difference for many U.S. photovoltaic manufacturers. The program has allowed us to reduce the cost of our new flagship product by 40% while increasing our manufacturing capacity by 200%. AstroPower recently received a letter from the Department of Energy congratulating us on exceeding our PVMaT contract solar cell efficiency milestones while increasing productivity.

Electric Utilities:

> The Emerging Technologies section of the Photovoltaics for Utility Scale Applications (PVUSA) program has pulled new technologies out of the laboratory. This program provided an early opportunity for AstroPower to demonstrate the manufacturing quality required by utilities for this new product.

> PV-Compact, a unique collaborative comprised of the solar industry, state consumer advocates, state utility regulators and electric utilities, has been designed to close a massive gap in electric utility understanding and acceptance of PV and to standardize its use. Over 90 electric utilities have pledged up to $368 million in a 70%, five-year cost-share with the federal government to integrate PV into the utility sector, thus creating the next generation of US-based PV manufacturing. The federal contribution buys down the regulatory risk needed by utilities to receive approval to integrate new technology on the electric grid. ***This program is based on the premise that for any industry to maintain global dominance, it must have a growing domestic market.***

These programs have made and continue to make a difference. It is too early to relax and declare a victory, however. We must strengthen the manufacturing capability in the United States. The Japanese Government has openly stated that development of thin silicon solar cells (similar to AstroPower's) is their highest priority in photovoltaics. The New Energy Development Organization (NEDO) of the Ministry of International Trade and Industry (MITI) has been funding several companies to develop thin silicon technology. One company is receiving $2.2 million/year to "reproduce AstroPower's results."

It is vital that we continue to manufacture these solar cell products with the high performance, high quality, and low costs required to successfully compete world-wide. Assistance from the Department of Energy programs has put us on the threshold of explosive growth. Continuation of the present programs is required to achieve the goal of a healthy photovoltaic industry in the United States.

Every Government dollar has attracted $2 in private sector money. The total cost to reach this level has been $29 million with 33% borne by the U.S. Department of Energy initially through Sandia National Laboratories and presently through the Photovoltaic Manufacturing Technology program (PVMaT) by the National Renewable Energy Laboratory.

Silicon-Film™ solar cells can help manage electricity demand and are pollution-free. U.S. developed technology should be combined with modern manufacturing techniques to keep this and other photovoltaic energy technologies in the U.S. Support from Congress has brought this technology to the threshold of making a significant contribution. Continued support over the next four years can launch this important technology and lead to a profitable domestic photovoltaic industry, which will create many new jobs from manufacturing through installation and operation. This new photovoltaic industry will have a long-term impact on energy self-sufficiency. The technology and brain-power are available in the USA to complete the development of this important solar electricity technology and make a difference for the future electricity supply and the growth of a new business sector.

TUESDAY, MARCH 28, 1995.

NAVAJO NATION

WITNESSES

THOMAS ATCITTY, VICE PRESIDENT
TIM GOODLUCK, CHAIR, DPA
DERRICK WATCHMAN, EXECUTIVE DIRECTOR, DPA

Mr. MYERS. Next we have Thomas Atcitty. Is that the way you pronounce it?

Mr. ATCITTY. That's right. A good Indian Navajo name. All it means is Smith.

Mr. MYERS. You are Smitty, then, for brief. Representing the Navajo Nation.

Mr. ATCITTY. My great grandfather was a blacksmith, but we are noted for silversmiths in the Navajo Nation.

Mr. MYERS. We are pleased to welcome you today. Your prepared statement will be placed in the record, and for the next five minutes you can proceed as you like.

Mr. ATCITTY. Thank you, Mr. Chairman. I have with me the Tim Goodluck, who chairs the power authority, which is working on some projects for the Navajo, and then the executive director is Derrick Watchman, sitting back there.

Mr. Chairman and members of the subcommittee, I am Thomas Atcitty, Vice President of the Navajo Nation, who was just sworn in January 10, so we are brand new here.

Mr. MYERS. Congratulations.

Mr. ATCITTY. We are new kids on the street. And on behalf of President Albert Hale and the Navajo Nation, I appreciate this opportunity to present the Navajo Nation's request for fiscal year 1996 funding to the subcommittee.

First, I would like to congratulate you, Mr. Chairman, on your new assignment. And I know that we look forward to working with you as we have always looked forward to working with the committee previously.

I also want to thank the former Chairman, Mr. Bevill, for your, the subcommittee's former assistance and attention to the needs of the Navajo Nation. We look forward to continuing our productive relationship with the subcommittee and with the new Members of Congress on funding efforts for Indian energy programs.

The Navajo Nation respectfully requests that $10 million be provided for section 2603 and earmarked for the Navajo transmission project for the fiscal year 1996. Maximum funding under Title XXVI would allow the Navajo Nation to continue its ongoing struggle for economic self-sufficiency through the development of energy resources.

The Navajo Nation is the largest Indian tribe in the United States, spanning into the States of Arizona, New Mexico, and Utah, with a population of over 200,000 living on the reservation.

The land is endowed with numerous natural resources, including coal, oil, natural gas, solar, wind, hydro and biomass that provide the Navajo Nation with a tremendous opportunity to pursue economic self-sufficiency and develop a virtually integrated energy industry while providing needed energy to our neighboring States.

Despite these endowments and its substantial economic potential, socioeconomic conditions on the Navajo Nation are comparable to those found in underdeveloped Third World countries. Recent reports have shown that the Navajo Nation is the poorest of all tribes in the United States. We do not want to be in welfare lines, therefore, we welcome Title XXVI amendments to the Energy Policy Act of 1992. We do not want to be a continued burden to the United States Government. We want to be part of the solution to the national debt and we strongly believe that this is one avenue to that end.

Navajo Nation resources are an integral part of the energy consumption requirements of the Southwest and Southern California. The two power plants located on the Navajo Nation are fueled with approximately 25 million tons of coal mined from Navajo lands. These plants provide for over 4,800 megawatts of electric energy to the region and Southern California. Unfortunately, the Navajo Nation has no ownership interest in the mines, power plants, and transmission lines located on the reservation, although a minimum amount of revenue is generated from the rent and royalties collected from these activities.

The Navajo transmission project represents the first time that the Navajo Nation is in a position to be a majority owner and operator of an energy facility profiting directly through its participation in the energy market. The Navajo Nation will receive annual revenues from NTP by leasing capacity in the transmission line systems to the regional utilities. The Navajo transmission project will also provide economic benefits by creating nearly 200 jobs during the construction phase with several permanent maintenance positions possible when the project is completed.

The NTP is a 400 mile, 500 kilovolt extra-high voltage transmission line between Shiprock, New Mexico, and the Las Vegas area in southern Nevada. The NTP has a planned capacity of approximately 1,800 megawatts with an intermediate terminal connecting the NTP to the Glen Canyon Power Plant and/or the Navajo generating station transmission systems.

Regional electric utilities have long recognized the lack of electrical capacity west from the Four Corners area. Loads centers in Southern California, Nevada, and Arizona cannot access the several thousand megawatts of generation in the Four Corners area due to the lack of transmission capacity. The NTP will provide an ability to schedule up to 1,800 megawatts of generation west to meet the increasing demands of these loads centers.

In addition, NTP will improve the overall systems stability of the western States. Several southwestern States support NTP, however they would like to see the Environmental Impact Statement completed as quickly as possible. Currently, NTP is in the preconstruction phase that is estimated to cost $25 million. The preconstruction phase began in 1992 and includes the production of an Environmental Impact Statement, other project development activities, and administrative costs.

To date, $15 million has been expended on preconstruction activities, $12 million of which has been utilized for the Environmental Impact Statement. In the fiscal year 1995——

Mr. MYERS. Mr. Atcitty, your time has expired. Could you summarize in the next 15 seconds? I am sorry to interrupt you.

Mr. ATCITTY. Yes. So what we are asking here is that the need to complete this Environmental Impact Statement before we can get to the next phase which is the construction phase, and that is estimated to cost around $350 million.

We are hoping that when we get to that phase, that we will be able to—we are already developing a dialogue with the financial institutions to where we will be working together with outside resources rather than constantly looking to the Federal Government for working relationships to construct the facility. So that is the next phase and we cannot get into the next phase without completing the EIS.

The Navajo Nation has always responded to the Federal Government when a crisis was confronting them. In the Second World War, when the world peace was at crisis, the Navajo Nation submitted a resolution offering its young people, and we all know that the Navajo language was what confused the Japanese which helped to win the South Pacific campaign. Again, the Nation is confronted with another crisis, and that is the national debt, and we are prepared to do our share instead of constantly holding our hand out for handouts.

We want to be a player in helping meet this national debt, so, Mr. Chairman, we are offering our assistance, and together I think we can help one another.

With that, Mr. Chairman, I would yield for any questions.

Mr. MYERS. Thank you, Mr. Atcitty.

We realize the importance of this program and what position it puts you in. And we also recognize the contributions you have made in the past and continue to make and what you offer here. So we thank you very much for your testimony today.

[The statement of Mr. Atcitty follows:]

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ALBERT A. HALE
PRESIDENT

THOMAS E. ATCITTY
VICE PRESIDENT

Subcommittee on Energy and Water Development
United States House of Representatives Committee on Appropriations

Hearing of Fiscal Year 1996 Appropriations
March 28, 1995

TESTIMONY OF THOMAS ATCITTY
VICE-PRESIDENT OF THE NAVAJO NATION

Mr. Chairman and Members of the Subcommittee, on behalf of President Albert Hale and the Navajo Nation, I appreciate this opportunity to present the Navajo Nation's Fiscal Year 1996 funding request to the Subcommittee.

At the outset, I want to congratulate the new Chairman, Mr. Myers. I also want to thank the former Chairman, Mr. Bevill, and Mr. Myers, as well as the other Subcommittee Members for their attention to Navajo Nation's needs in the past years. We look forward to continuing our productive relationship with the Subcommittee and with the new Members of Congress on funding efforts for Indian energy programs.

The Navajo Nation is disappointed that the Department of Energy ("DOE") did not request any monies for Section 2603 of the Energy Policy Act in the FY 1996 (P.L. 102-486) in FY 1996. As the Subcommittee may be aware, the Navajo Nation was actively involved in the development of the Indian Energy Resources provision, Title XXVI, under the Energy Policy Act of 1992 during the 102nd Congress. Title XXVI establishes "a demonstration program to assist Indian tribes in pursuing energy self-sufficiency and to promote the development of a vertically integrated energy industry on Indian reservations."

The Department of Energy is authorized, under section 2603, to fund up to $30 million each year to carry out the purposes of the section. The Navajo Nation strongly urges that each subsection of 2603 be fully funded at the authorized level of $10 million each. The Navajo Nation specifically requests that $10 million be provided for subsection 2603(a)(1) and earmarked for the Navajo Transmission Project ("NTP") for the Fiscal Year 1996. Maximum funding under Title XXVI would allow the Navajo Nation to continue its ongoing struggle for economic self-sufficiency through the development of energy resources.

THE NAVAJO NATION

The Navajo Nation is the largest Indian tribe in the United States. The Navajo Nation encompasses 17.5 million acres, spanning the states of Arizona, New Mexico, and Utah. It is endowed with numerous natural resources, including coal, oil, natural gas, solar, wind, hydro, and bio-mass that provide the Navajo Nation with tremendous opportunity to pursue energy self-sufficiency and develop a vertically integrated energy industry.

Despite these endowments and its substantial economic potential, socio-economic conditions on the Navajo Nation are comparable to those found in underdeveloped third world countries. According to the 1990 Census, the percentage of Navajos living below the poverty level was approximately 56 percent as compared to approximately 13 percent for the entire United States. The average annual per capita income of the Navajo people is $4,106, compared to the U.S. average of $19,082 in 1990. Navajo unemployment ranges from 36 percent to over 50 percent seasonally.

The Navajo Nation, a net energy exporter, is strategically located along major utility and energy transportation corridors in the southwest. Navajo Nation resources supply an integral part of the energy consumption requirements of the Southwest and southern California. The two power plants located on the Navajo Nation are fueled with approximately 25 million tons of coal mined from Navajo lands. These plants provide over 4800 megawatts of electric energy to the region and southern California. Unfortunately, the Navajo Nation has no ownership interest in the mines, power plants, and transmission lines located on the reservation although a minimal amount of revenue is generated from the rent and taxes collected from these activities. The Navajo Nation is seeking continued assistance from the Department of Energy to actively manage the future development of its resources and reach the ultimate goal of energy self-sufficiency.

THE NAVAJO TRANSMISSION PROJECT

It is the philosophy of the Navajo Nation is to promote development that creates a viable economy for the Navajo Nation. To that end, the Navajo Nation must develop programs and projects that utilize our available energy resoruces, such as land, minerals, and water, without adversely impacting Navajo communities and the environment. The Navajo Transmission Project represents the first time that the Navajo Nation is in a position to be the majority owner and operator of an energy facility, profiting directly through its participation in the energy market. The Navajo Nation will receive annual revenues from the NTP by leasing capacity in the transmission line systems to the regional utilities. The NTP will also provide economic benefits by creating nearly 200 jobs during the construction phase, with several permanent maintenance positions possible when the project is complete.

The NTP is a four hundred mile 500 kilovolt extra high voltage transmission line between Shiprock, New Mexico and the Las Vegas area in southern Nevada. The NTP has a planned capacity of approximately 1200-1800 megawatts with an intermediate terminal connecting the NTP to the Glen Canyon Power Plant and/or the Navajo Generating Station transmission systems.

Regional electronic utilities have long recognized the lack of electrical capacity west from the Four Corners Area. Loads centers in southern California, Nevada, and Arizona cannot access the several thousand megawatts of generation in the Four Corners area due to the lack of transmission capacity. The NTP will provide the ability to schedule up to 1800 megawatts of generation west to meet the increasing demands of those load centers. In addition, the NTP will improve the overall system stability of the western States. Several southwestern utilities support the NTP, however, they would like to see the Environmental Impact Statement ("EIS") completed as quickly as possible.

The Navajo Nation, through its energy development enterprise, the Dine' Power Authority ("DPA"), established by the Navajo Nation Council in 1985 to participate in electrical generation and transmission projects, is sponsoring the NTP in partnership with the Western Area Power Administration ("WAPA"). The Navajo Nation will be the majority owner of the line. The Navajo Nation is committed to funding 60 percent of the NTP and, to date, has funded approximately that amount through Navajo Nation appropriations and funding from the Department of Energy.

Currently, the NTP is in a pre-construction phase that is estimated to cost $25 million. The pre-construction phase, begun in 1992, includes the production of an Environmental Impact Statement, other project development activities and administrative costs. To date, $15 million has been expended on pre-construction activities, $12 of which has been utilized for the EIS. In federal fiscal year 1995, the Navajo Nation secured $6.6 million from the Energy Policy Act of 1992 (EPAct), under Title XXVI, Indian Energy Resources, Section 2603 (a)(1). DPA allocated those funds for the development of the EIS and other pre-construction activities. However, additional funding is necessary for completion of these activities. The EIS is in the final phases and a draft EIS will be completed by the end of FY 1995 if adequate funding is made available through DOE.

FISCAL YEAR 1996 FUNDING NEED

With the passage of the Energy Policy Act of 1992, Title XXVI, Indian nations now have an opportunity to develop independent energy projects, such as the NTP. Funding through section 2603 has enabled the Navajo Nation and DPA to begin a number of pre-construction activities. However, in order to complete the pre-construction activities, including the final EIS, the Navajo Nation requests $10 million, the authorized amount available under Section 2603. Approximately $6.5 million is required for the tower and substation design of the NTP, surveying expenses, and administrative costs. The balance is required for the completion of the EIS.

The President Albert Hale and I are committed to seeing the NTP completed. The Navajo Nation Council has continuously supported NTP through annual appropriations for the administrative costs associated with the pre-construction activities. When the pre-construction activities, including the EIS, are completed this year, there will be no additional monies required from the Department of Energy under Title XXVI of the Energy Policy Act of 1992. The $10 million that may be available under Title XXVI, Section 2603 (a)(1), is critical to the completion of the pre-construction activities and the final EIS. Without funding in 1996, the NTP will be jeopardized and costly delays may undermine all the work and financial commitments made to date by the Navajo Nation and WAPA. This would serve to undermine the policy directive outlined in Title XXVI.

BUREAU OF RECLAMATION FUNDING TO THE NAVAJO NATION

The Navajo Nation urges the Subcommittee to instruct the Bureau of Reclamation to seek proactively to serve Indian tribes without excessive cost-share requirements. The Navajo Nation has many water resources management and supply needs that we feel should be requested through the Bureau of Reclamation directly, rather than through the Bureau of Indian Affairs ("BIA"). Investments into the management and conservation of Navajo Nation water resources have historically been left up to the BIA. However, this agency has never had the technical expertise to provide either for adequate stewardship nor the commitment to offer proper training and capacity building of Indian tribes' staff, in order to enable tribes to do the required work themselves.

The degraded condition of Navajo water resources will only be reversed if the Navajo people are afforded the same levels of investment into human capital development and water resources management as have been afforded the rest of America.

CONCLUSION

It is my hope that the Members of this Subcommittee understand the importance of the NTP to not only to the Navajo people, but to the electrical system in the Southwest. The project is essential to eliminating the electric bottleneck that has constrained the Four Corners area for many years, will increase the efficiency of electric energy delivery in the West, and conserve the use of more expensive and less available fuels. The project will also provide approximately 200 urgently needed Navajo jobs during construction, thereby adding immediately to the Navajo economy, and the ultimate objective, economic growth and self-sufficiency. Most importantly, the NTP will be the first energy project owned by the Navajo Nation and will help to establish us as a major player in the energy market, leading the way for other American Indian nations on the quest for self-sufficiency. The Navajo Nation appreciates the support of the Subcommittee to help us achieve this goal.

TUESDAY, MARCH 28, 1995.

ADVANCED ENERGY PROGRAMS

WITNESS

ELLSWORTH E. GERRELS, MANAGER, GOVERNMENT RELATIONS, GENERAL ELECTRIC COMPANY

Mr. MYERS. Mr. Ellsworth E. Gerrels, Manager of Government Relations, General Electric Company. Welcome back again.

Mr. GERRELS. Yes. We, as GE's nuclear energy division, would really like to thank you, Mr. Chairman, and you, the Ranking Member of the committee, and this committee for its continuous support of a strong energy policy and particularly one of nuclear power. But I have noticed over the past year or two sort of a weakening of that resolution by the administration and it concerns us.

I have been directly involved in engineering of nearly all forms of electrical generation including solar, wind, and fuel cells in my 38 years with General Electric. And I must conclude that my work in nuclear has prompted me to make the conclusion that nuclear power is the only practical, economical, and, I might add, safe large-scale source of electricity available that does not pollute the air.

The U.S. will require over 150 new large power plants in the next 30 years and nuclear power is essential. I wish that the rest of the U.S. public would understand that fact. Yes, the nuclear industry has made mistakes, but we have learned from our mistakes. We have challenges but we are meeting those challenges head on. We have improved the safety, reliability, productivity, and capacity factors of our existing plants. Just last month a large GE-designed boiling water reactor near Limerick, Pennsylvania, accomplished a refueling outage in under 23 days. A few years ago, average plant outages were 78 days. Each day of operation saves utilities over $300,000.

In the short time remaining, I would like to provide you with a summary of the status and the role of our government in advanced nuclear programs at General Electric.

First, the advanced boiling water reactor design certification program being conducted with the NRC. This $88 million program was initiated by DOE in 1986 and is 50–50 cost shared. Final design approval from the NRC was granted in July of 1994 and this plant was the first recipient of a FDA, based on the new licensing reform regulations adopted in 1989, although delayed final certification of the 1,350 megawatt ABWR is anticipated in early 1996. The remaining funding needed to complete this program is in the DOE fiscal year 1996 budget request.

The ABWR is also part of DOE's first-of-a-kind engineering program, which provides new advanced standardized certified large and midsize light water plants available to utilities by the year 2000. That is the nuclear option. This heavily 50–50 cost-shared, $100 million program was initiated in 1993 and will be completed by 1996. It is adequately covered in DOE's fiscal year 1996 budget request.

Two similar plants are presently being built in Japan, and they have plans, the Japanese have plans, for 20 more in the next 15 years. That is a large export potential.

The GE design simplified boiling water reactor, a 650 megawatt passively safe plant, is one of two midsize plants undergoing NRC design certification. The program was initiated in 1990 and $92 million of this $140 million program is cost shared by industry. The program, originally scheduled for completion in 1995, has been extended for approximately three years due to limited resources and to provide the additional licensing information analysis and testing required by the NRC for these advanced passively safe plants.

We did not request additional funding in fiscal year 1995 but do request an additional $12 million be added in the fiscal year 1996 budget for this program.

Now, to briefly address an interesting point. The liquid metal reactor, which was terminated by Congress last year. Recent analysis, and this is kind of the dessert a little bit. Recent analysis indicates this technology, coupled with light water reactors, has the potential for as much as—and hold yourself on this one—has the potential for as much as a 50 to 1 reduction in the size of the underground repository and a reduction in repository life requirements from 10,000 years to several hundred years. That means significant repository cost savings of billions of dollars could result.

I believe termination of this program should be reexamined and stopped short of irreversibility. To this end, we request $8 million to be appropriated for use by the GE ALMR industrial team to provide additional analysis and test data of this technology's unique capability so that a reasonable decision can be made by the end of 1996.

I have a couple of important items before I conclude. GE believes in privatization, but some degree of government support, particularly in R&D and licensing, is necessary to assure our international customers of our Nation's commitment to nuclear power. This support should be bolstered by a sound and consistent energy policy. Our international customers are a source of major export potential, and of particular importance this year is the renewal of the Euratom agreement, which will expire at the end of December.

Finally, we need the help of Congress to provide the financial, technical, and political solutions necessary to ensure timely disposition of our nuclear waste.

We at General Electric thank you for this opportunity and thank you again.

Mr. MYERS. We thank you, Mr. Ellsworth. We share your concern about ALMR. We did not stop it in this committee, you know.

Mr. ELLSWORTH. I know.

[The statement of Mr. Ellsworth follows:]

TESTIMONY OF STEVEN R. SPECKER
VICE PRESIDENT & GENERAL MANAGER
GENERAL ELECTRIC NUCLEAR ENERGY
AND
ELLSWORTH L. GERRELS
MANGER OF GOVERNMENT RELATIONS
GENERAL ELECTRIC NUCLEAR ENERGY

Before the
House Energy and Water Development
Subcommittee on Appropriations

March 28, 1995

Mr. Chairman, and members of the Subcommittee, I am Steven Specker, Vice President and General Manager of General Electric's Nuclear Energy Division. I want to express my appreciation for the opportunity to participate in these important hearings.

We, in the General Electric Company particularly want to thank you, Mr. Chairman, and the ranking minority leader and other members of this subcommittee for your foresight and continuity of support of a sound and balanced energy policy — a policy which recognizes the vital importance that nuclear power must play in our nation's economy, leadership and energy future. The nuclear industry and Congress, including this committee, has recognized the need of nuclear energy in the past as exemplified by the importance placed on it in the Energy Policy Act of 1992. However, over the past two years, we perceive a weakening of resolve, particularly within this administration, to implement those important nuclear energy provisions. We are asking for this committee's continuing commitment to maintain and support a strong nuclear power option in this country.

Let us briefly look at the road we have traveled to get where we are.

We have just celebrated the 50th anniversary of fission. The road leading to it's peaceful uses in this country has been bumpy. There have been landslides, a few accidents fortunately injury free, and there are still those along the road who throw stones.

Some would say we don't need nuclear power. Nuclear is perceived by them as unsafe. Nuclear plants cost too much and have taken too long to build. In addition, they have been costly to operate. Some advocate abandoning our plants and putting our dependence on conservation and renewables. Others say we do not have a solution for nuclear waste. It is obvious from the nuclear power critics, we have not succeeded in the education of the public and we must do better.

Yes, we have made mistakes. But we have learned from our mistakes. I am proud to say that U.S. industry, utilities and the Department of Energy have banded together, and with your help, we have paved the road to success. Oh, the road still has its curves and obstacles, but the driver is trained and alert, caution signs are up, the vehicle is well designed and the goal is in sight.

Let's look at where we are and what is directly ahead.

First let me say that the need for nuclear power in the United States and the rest of the world has not diminished. The world's need for electricity is increasing rapidly, spurred on by the aspirations of developing nations. Although the nuclear industry in the U.S. does not expect orders of new plants before the year 2000, new base load plants in the U.S. will be required in the next decade. Due to the life limits of existing electrical power plants and the projected growth of electricity in the U.S., it is expected that 150-200 gigawatts (over 100 large baseload plants) will be required by the year 2030.

So-called renewables and soft energy systems can not provide much baseload power, nor can we rely on fossil fuels such as coal and natural gas to carry the load. We must have an energy policy that considers the environment, the conservation of natural resources and provides the economy of production necessary to face world competition. Nuclear energy is the only practical, economical, large scale source of electricity available that does not pollute the air or produce carbon dioxide. This fact is recognized throughout the world.

The nuclear industry in the United States is meeting this challenge head on and is making tremendous progress in spite of all the roadblocks thrown in its way. The industry has improved the safety, reliability and productivity of the existing plants and is assisting other nations in doing the same. We have taken a new approach to the design of new nuclear plants. Standardization, improved safety, reduced construction and operating costs have been designed in. The licensing process has been reformed. In addition, considerable pressure is being applied to get our nuclear waste disposal program back on course to ensure DOE meets its obligation to accept spent fuel from the utilities by 1998.

Let's now look at current plant safety and performance.

U.S. nuclear power plants continue to protect our environment while exhibiting a nearly perfect safety record. Every year the use of the 109 nuclear power plants in this country prevent the emission of 133 million metric tons of carbon into the air. Our nuclear power plants operated continuously through the record breaking east coast freeze in the winter of 1994, a time when coal and natural gas plants became inoperable.

For the fifth straight year, U.S. nuclear power plant performance has increased significantly. An average capacity factor of over 75 percent was achieved in 1994 as compared to just 58.5 percent in 1980. Much of this has been achieved through improved operating, maintenance and outage management programs. Operating and maintenance costs are being reduced without compromising safety and reliability. Median refueling outage times have been reduced from 78 days in 1990 to under 55 days in 1994. Just last month, a large GE designed 1100 MWe boiling water reactor plant owned by PECO Energy in Limerick, Pennsylvania, accomplished a fuel outage in under 23 days. That plant, like many others in our country, has been operating with capacity factors of well over 90%. At $300,000 a day, not counting the cost of replacement power, U.S. utilities are clearly cutting costs every time they increase their days of operation.

Now a closer look at what is required to get to our destination.

We may not be driving a race car but our vehicle is well designed and we are making steady progress toward the resumption of the nuclear power option in the U.S.

Clearly, a strong foundation is being established for a new generation of advanced light-water reactors through the government-industry cost-shared design certification and First-of-A-Kind Engineering (FOAKE) programs. GE holds three such contracts which culminate in the design, testing, licensing and subsequent availability of the next generation of advanced standardized boiling water nuclear plants being available to the U.S. utilities by the year 2000 and beyond.

I would like to briefly provide you with the status and what is required to achieve completion of our government supported programs.

Advanced Boiling Water Reactor Design Certification Program- The 1350 MWe ABWR is currently undergoing design certification with the NRC. This $88M program was initiated in 1986 and is 50-50 cost shared between DOE and industry. Final Design Approval from the NRC was granted in July of 1994, the first recipient of an FDA based on the new licensing reform regulations adopted by the NRC in 1989. Delays experienced were largely attributable to the learning process within the NRC in implementing the reform regulations. The final certification of the design is anticipated by early 1996. The funding in the DOE FY96 budget request is anticipated to be adequate for program completion.

ABWR First-Of-A-Kind Engineering Program-
The Advanced Reactor Corporation (ARC) and the DOE entered into a cooperative agreement to support the industry effort to develop standardized certified advanced light water reactor designs and associated firm cost and construction estimates for use by utilities. As a result, the FOAKE program was initiated in 1993. This heavily cost shared (50-50), $100M program for the 1350 MWe GE ABWR is on schedule for completion in 1996. GE and its industrial team have spent about $350M on the design of this advanced reactor plant in addition to the work being performed under FOAKE. GE has designed and is currently building, in conjunction with its Japanese partners, two ABWRs in Japan with operational dates in 1996 and 1997. Both these plants are on schedule and cost. The FOAKE program will help to bring this plant design baseline to U.S. standards. and subsequent commercial availability. Funding specified in DOE's FY96 budget request is expected to be adequate.

Simplified Boiling Water Reactor Design Certification-
The GE designed SBWR, a 650 MWe simplified, passively safe plant, is one of two mid-size plants undergoing NRC design certification. This $140M advanced LWR program, $92M of which is cost shared, is jointly sponsored by the Department of Energy and U.S. and international industries and utilities. The SBWR program was initiated in 1990 and was originally to be completed in 1995 resulting in the NRC certification of these plants for subsequent availability for U.S. utilities. The program was recently extended for approximately three years due to resource limitations and to provide the additional licensing information, analysis and testing required by the NRC of an advanced passively safe plant design. International support, including cost sharing, remains very strong. Additional resources of $12M, is requested in FY96 to complete the testing, documentation and analysis code qualifications to meet NRC needs.

Weapons Plutonium Disposition with LWRs-
DOE contracted with U.S. reactor manufacturers to conduct studies of the disposition of Pu weapons material in fission reactors. The initial $4M studies have been completed. The present program is under evaluation at DOE. It has been found that boiling water reactors are well suited to provide disposal of weapons materials in a most expeditious and cost effective manner. GE continues to work with BWR utilities to provide DOE data for this important program.

Advanced Liquid Metal Reactor/Actinide Recycle System-
You may ask, why bring this program up again? It is not a popular subject, but I want to share a few thoughts with you regarding some of the unique technology it provides and what implications its premature termination may have. The ALMR system utilizes liquid metal fast reactor technology being developed by the GE Industrial team, combined with IFR-Pyroprocess fuel cycle technology that was being developed by Argonne National Lab. This joint program was terminated in 1995. The cost shared ALMR contract with GE was one of the most successfully run programs at DOE and the technology being developed offers unique advantages in waste reduction, proliferation resistance and Pu disposition. Premature termination eliminates the potential to make major cost savings in the permanent nuclear waste repository. Recent analysis indicates that a reduction in repository size of as much as 50 to 1 may be achievable in addition to reduction of repository lifetime requirements from 10,000 years to a few hundred years. Other features include the potential to completely destroy weapons plutonium and recycle Pu laden spent fuel from light

water reactors. Japan, Korea and several European countries continue to show interest in the program. It is recommended termination be stopped short of irreversibility, such that the merits of the program can be readdressed in the near future. To this end, the GE industrial team requests $8M in the FY96 budget for continuation of selected technology R&D to make possible further study of waste management and other nuclear and non-nuclear applications.

Some additional thoughts....

Before I conclude, I want to bring to your attention two critical items which are important to the nuclear option in the U.S. and to our nation's competitiveness in the international marketplace.

We at GE believe in privatization, a buzz word around Congress these days. Let me however provide a word of caution. Some degree of support by the government, particularly in R&D and licensing, is necessary to assure our international customers that our nation understands the importance of nuclear power in meeting the worlds need for electricity. Coupled with modest financial support is the need for the administration and Congress to show support by policy and action. The Euratom agreement, which will be presented to the Congress for approval this year, is a case in point. This agreement, which expires at the end of this year, is essential in maintaining strong leadership and will have a significant impact on our balance of trade in the international marketplace.

Finally, we must provide the financial, technical and political solutions necessary to ensure timely disposition of our nuclear waste. Waste bills are now before Congress. I will not take the time to address this concern in detail as it will be presented by others in our industry. Only to say, solutions exist and we must exert our determination and resolve to this end.

Conclusion

In conclusion, Mr. Chairman and members of this committee, we at GE want to again thank you for the vision you have shown in the past. We recognize the budget pressures you are under and we also know you understand the important energy issues we face. We will continue to work with you in addressing our nation's energy challenges and will remain focused on the road ahead which leads to a more secure future.

Thank you.

TUESDAY, MARCH 28, 1995.

DOE PROGRAMS

WITNESSES

DR. NED SAUTHOFF, CHAIRMAN, ENERGY POLICY COMMITTEE, INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

MARVIN McKOY, VICE CHAIRMAN, ENERGY POLICY COMMITTEE

Mr. MYERS. Dr. Ned Sauthoff, Chairman of the Institute for Electrical and Electronics Engineers, IEEE.

Mr. SAUTHOFF. Not quite. Just the Energy Policy Committee.

Mr. MYERS. Okay. Dr. Sauthoff, your prepared statement will be placed in the record and you can proceed as you like for the next five minutes.

Mr. SAUTHOFF. Thank you, Mr. Myers and Mr. Bevill.

As you described in my introduction, I am the Chairman of the Energy Policy Committee of IEEE. We are not working on energy policy issues within IEEE. I am also head of the Plasma Science and Technology Department at the Princeton Plasma Physics Laboratory and physics manager of the U.S. ITER Home Team.

Next to me here is Marvin McKoy, the committee's vice chair, who is a representative of Georgia Power's Olympic Project Management team. His company is going to bring U.S. power to the Olympics, so to say. Matter of fact, directly, it will bring it from Alabama.

Mr. BEVILL. Good.

Mr. SAUTHOFF. Today, we are here to speak to you in place of the Vice President of Professional Activities. As you know, IEEE is a transnational professional society whose 320,000 members live and work in more than 130 countries throughout the world. IEEE's U.S. Activities Board promotes the technology policy and professional career interests of IEEE's 240,000 U.S. members.

We are here because reliable and affordable electrical power is essential for the United States to sustain and increase its productivity and economic competitiveness and to support a high quality of life for its population. Prudent government support of energy research will provide a basis for the U.S. electrical power industry to regain its position as a major worldwide supplier of electrical power technology.

As you know, electricity is a particularly flexible energy form for transmitting power. The dominant primary sources in today's U.S. Electrical power system are fossil fuels, nuclear fission, and hydropower. Our overall energy goals should address not only all these sources but also we should foster the development and deployment of energy production and conversion technologies that will increase the efficiency of U.S. energy utilization, improve environmental quality, and support U.S. competitiveness.

Environmental impacts and decreasing reserves of fossil fuels force us to address the need for alternative energy options. Production technologies worthy of exploration include advanced fossil fuel systems, solar and renewable energy systems, nuclear fission systems, and thermonuclear fusion systems, the main topic of our remarks today.

I know Chairman Myers and many others that are very interested in the U.S. fusion program. IEEE–USA firmly supports fusion research and development and believes that fusion should be developed as a significant element within a portfolio of long-term electrical energy generation technologies because of fusion's potential as an inexhaustible and environmentally attractive energy source. A stable government commitment to the long-term development of fusion power is essential to exploit domestic and international fusion advances and to remain among the leaders in strategically important areas.

Recognizing that all government spending is rightly undergoing intense scrutiny, it is up to every government-funded agency and program to justify its continued existence. In the fusion program, as you have heard from many of your witnesses, there have been very significant milestones that have been reached recently and these attest to the promise and continued viability of the program.

For instance, highlights in the U.S. magnetic fusion energy program must include: TFTR's production of 10 million watts of fusion power; also the achievement of promising regimes of improved plasma confinement and stability in the base program tokamaks; completion of conceptual design of the U.S.'s TPX, which is targeted at tokamak concept improvement; and significant progress in the continuing engineering design of the ITER in which the U.S. is a partner with the Governments of Japan, Russia, and the European Union.

In the U.S. inertial fusion energy program, there have also been highlights. For instance, there was the demonstration that a driver energy of 5 to 10 mega jewels is adequate to achieve fusion yield many times larger than the required driver energy. There are also bureaucratic accomplishments such as declassification of significant parts of the ICF program. And there was DOE approval of the mission need and authorization for design of the inertial confinement fusion National Ignition Facility, which is targeted at ignition and energy gain in the laboratory.

These advances in the U.S. fusion energy program are really impressive, but the U.S. fusion program must support a balance of the domestic and the international programs to remain among the leaders and to fulfill its role as an international partner.

The fusion program should include an appropriate balance of ignited plasma studies such as in TFTR and ITER, fusion technology programs, tokamak concept improvement as in the current base program and in the planned TPX, inertial fusion energy such as in the National Ignition Facility, and the development of drivers, alternate concepts, and don't forget, the basic plasma studies.

U.S. industry should be involved whenever appropriate so that we will have the skills necessary to compete in the international market for providing fusion reactors in the future. Only with your continued leadership and support can the U.S. achieve its fusion energy potential and yield a return far greater than its investment.

As we consider the future of fusion energy, we must be mindful that fusion research should be aimed at timely demonstration of fusion as an attractive power source for base-load electric power generation so that fusion will be available as an option in a balanced and diversified portfolio of future energy technologies.

We thank you for your past support. We recommend that you continue your visionary leadership in the future, and we in IEEE-USA stand ready to provide technical information to assist you in your role. Thank you.

Mr. MYERS. Thank you, Dr. Sauthoff, for your fine statement.

[The statement of Mr. Sauthoff follows:]

IEEE
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Government Fellowships

Network of Professional Activities Committees for Engineers

STATEMENT

of

DR. NED SAUTHOFF
CHAIRMAN
ENERGY POLICY COMMITTEE

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS-UNITED STATES ACTIVITIES

before the

HOUSE COMMITTEE ON APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

March 28, 1995

Mr. Chairman and members of the Committee, my name is Ned Sauthoff. I am Chairman of the Energy Policy Committee of the Institute of Electrical and Electronics Engineers - United States Activities. I am also Head of Plasma Science and Technology at the Princeton Plasma Physics Laboratory and Physics Manager on the U.S. ITER Home Team. Next to me is Marvin McKoy, the Committee's Vice-Chair who is a representative of Georgia Power's Olympic Project Management team. Today, I speak to you as a representative of the IEEE-USA.

The IEEE is a transnational professional society whose 320,000 members live and work in more than 130 countries throughout the world. IEEE's United States Activities Board promotes the technology policy and professional career interests of IEEE's 240,000 U.S. members.

Reliable and affordable electrical power is essential for the United States to sustain and increase its productivity and economic competitiveness and to support a high quality of life for its population. Prudent government support of energy research will provide a basis for the U.S. electrical power industry, which is a major segment of the U.S. economy, to regain its position as a major worldwide supplier of electrical power technology.

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Electricity is a particularly flexible energy form for transmitting power. The dominant primary sources in today's U.S. electrical power system are fossil fuels, nuclear fission and hydropower. Our overall energy goals should address all these sources and foster the development and deployment of energy production and conversion technologies that will increase the efficiency of U.S. energy utilization, improve environmental quality and support U.S. competitiveness. Environmental impacts and decreasing reserves of fossil fuels force us to address the need for alternative energy options. Production technologies worthy of exploration include advanced fossil fuel systems, solar and renewable energy systems, nuclear fission systems and thermonuclear fusion systems --- the main topic of my remarks today.

I know that Chairman Myers and many others are very interested in the U.S. Fusion Program. IEEE-USA firmly supports fusion research and development and believes fusion should be developed as a significant element within a portfolio of long term electrical energy generation technologies because of fusion's potential as an inexhaustible and environmentally attractive energy source. A stable government commitment to the long term development of fusion power is essential to exploit domestic and international fusion advances and to remain among the leaders in strategically important areas.

Recognizing that all government spending is rightly undergoing intense scrutiny, it is up to every government-funded program to justify its continued existence. In the fusion program, significant milestones have been reached recently and these attest to the promise and continued viability of the program.

Highlights in U.S. magnetic fusion energy program include:

- the production of more than 10 million watts of fusion power in the U.S.'s Tokamak Fusion Test Reactor (TFTR);
- achievement of promising regimes of improved plasma confinement and stability in base program tokamaks;
- completion of the conceptual design of the U.S.'s Tokamak Physics Experiment (TPX), which is targeted at tokamak concept improvement; and
- significant progress in the continuing engineering design of the International Thermonuclear Experimental Reactor (ITER), in which the U.S. is a partner with the governments of Japan, Russia and the European Union.

Highlights in the U.S. inertial fusion energy program include:

- demonstration that a driver energy of 5 to 10 MJ is adequate to achieve fusion yield many times larger than the required driver energy;

- declassification of significant parts of the Inertial Confinement Fusion (ICF) program, which will lead to increased openness, participation by universities and industry, and increased communication with the international ICF program participants; and

- DOE approval of the mission need and the authorization for design for the inertial confinement fusion National Ignition Facility (NIF), which is targeted at ignition and energy gain in the laboratory.

These advances in the U.S. fusion energy program are impressive, but the U.S. fusion program must support a balance of the domestic and the international programs to remain among the leaders and to fulfill its role as an international partner.

The fusion program should include an appropriate balance of ignited plasma studies such as in TFTR and ITER, fusion technology programs, tokamak concept improvement as in the current base program and the planned TPX, inertial fusion energy such as in the National Ignition Facility, alternate concepts and basic plasma studies. U.S. industry should be involved whenever appropriate so that it will have the skills necessary to compete in the international market for providing fusion reactors in the future. Only with your continued leadership and support can the U.S. achieve its fusion energy potential and yield a return far greater than its investment.

As we consider the future of fusion energy, we must be mindful of the following: fusion research should be aimed at timely demonstration of fusion as an attractive power source for base load electrical power generation so that fusion will be available as an option in a balanced and diversified portfolio of future energy technologies.

We thank you for your past support, we recommend that you continue your visionary leadership in the future, and we in IEEE-USA stand ready to provide technical information to assist you in your role.

Thank you.

IEEE

12/28/94

ENTITY POSITION STATEMENTS OF THE UNITED STATES ACTIVITIES BOARD

(Alphabetical List)

A Bill to Set Federal Standards for Permissible Employee Preinvention Assignment Agreements (Approved February 1990)
Advanced Scientific Computing Capability Development (Approved May 1988)
Alien Engineers, Foreign Students and our National Engineering Resource (Approved January 1994)
Alternative Certification of Engineers as Precollege Science and Mathematics Teachers (Approved August 1993)
Animal Experimentation in Biomedical Research (Approved November 1990)
Biological Effects of Power Frequency Electric and Magnetic Fields (Approved November 1988)
Biological Effects of Electric and Magnetic Fields from Video Display Terminals (Approved August 1990)
Computer Crime (Approved August 1990)
Computer Industry Patents (Approved November 1993)
Defense Conversion (Approved February 1993)
Defined Contribution Pension Plans (Approved November 1989)
Domestic Transfer of Federally Funded Technology (Approved November 1991)
Dual Use of Technologies (Approved November 1991)
Early Retirement Incentive Programs (Approved November 1989)
Electric Power in the United States - The Challenging Decade Ahead (Approved November 1989)
Electromagnetic Spectrum Allocations (Approved February 1992)
Employment Discrimination by Employers of Engineers (Approved November 1991)
Encryption Policy (Approved January 1994)
Energy Efficiency (Approved December 1992)
Energy from Municipal Waste (Approved February 1988)
Engineering Education in the United States [Joint EAB/USAB Paper] (Approved August 1990)
Engineering Research and Development and Technological Competitiveness (Approved February 1991)
Engineering Manpower Policy in the United States (Approved December 1992)
Engineering Utilization and the U.S. Standard of Living (Approved June 1991)
Enhancing U.S. Productivity through Improved Utilization of U.S. Engineers (Approved January 1994)
Focus for Biomedical Engineering at the National Institutes of Health (Approved May 1992)
Fusion Power (Approved June 1991)
Health Aspects of Exposure to Electric and Magnetic Fields from RF Sealers and Dielectric Heaters (Approved May 1992)
High Performance Computing and Communications (Approved July 1992)
Human Exposure to Microwaves and other Radiofrequency Electromagnetic Fields (Approved August 1990)
Human Exposure to Radio-Frequency Fields from Police Radars (Approved May 1992)
Human Exposure to Radio Frequency Fields from Portable and Mobile Telephones and other Communication Devices (Approved December 1992)
Human Exposure to RF Emissions from Cellular Radio Base Station Antennas (Approved May 1992)
Individual Retirement Arrangements (IRAs) (Approved December 1992)
Integration of Social Security Benefits and Private Pension Benefits (Approved January 1994)
Intellectual Property Protection (Approved February 1990)
Interpretation of Engineering Supply and Demand Surveys (Approved January 1994)
Licensure and Registration (Approved December 1992)
Medical Device Evaluation (Approved November 1991)
NASA's Role in R&D for Communications Satellites (Approved August 1993)
National Energy Policy (Approved November 1991)
Nuclear Fuel Cycle in the United States (Approved November 1991)
Pension Annuity Protection (Approved August 1993)
Pension Coverage and Portability Improvement Proposal (Approved May 1990)
Pension Underfunding and Pension Benefit Guaranty Corporation Solvency Problems (Approved January 1994)
Photovoltaic Technology Development (Approved August 1990)
Precollege Education in Mathematics, Science, and Technology in the United States (Approved November 1989)
Preemployment Disclosure (Approved February 1991)
Privacy and Universal Identification Numbers (Approved June 1994)
Product Liability Tort Reform (Approved August 1993)
Professional Practices for Engineers, Scientists, and their Employers (Approved August 1990)
Recommendations on Graduate Enrollment in Electrical and Computer Engineering Education (Approved February 1989)
Recommendations on University/Industry Cooperation in Advanced Technology (Approved February 1989)
Regaining Strength in Technology Commercialization (Approved December 1992)

Research Needs in Health Effects of Power Frequency Electric and Magnetic Fields (Approved November 1991)
Retirement Income Benefits (Approved November 1989)
Reverse Engineering (Approved November 1993)
Safety of Electromagnetic Pulse Simulators (Approved May 1992)
Section 1706 of the Tax Reform Act of 1986 (Approved December 1992)
Service Contracts and Engineering Compensation (Approved December 1992)
Space Station (Approved November 1991)
Spectrum Auctioning (Approved November 1991)
Tax Policy and Technological Competitiveness (Approved November 1991)
Technological Advancement in Telecommunications and the Issue of Privacy (Approved July 1992)
Telecommunications in the Global Information Infrastructure (Approved June 1994)
The Need for Nuclear Power in the United States (Approved July 1988)
The Role of Engineers in Restructuring the Electric Power Systems in the United States (May 1988)
The Role of Information Technologies in Health Care Reform (Approved November 1994)
The Role of Technology in Health Care Reform (Approved January 1994)
The United States Civilian Space Program (Approved February 1987)
Tort Reform (Approved November 1987, Reaffirmed December 1992)
Toward an Architecture for the Interoperation of High Resolution Systems Across Industries (Approved June 1991)
Tripartite Use of Government Laboratories (Approved November 1993)
U.S. Competitiveness (Approved November 1991)
U.S. Electric Utility Industry Restructuring and the Bulk Power Electric System (Approved November 1989)
U.S. Government Advisory Entities Concerned with Health Related Issues (Approved November 1991)
U.S. Government Management Positions Responsible for Engineering Decisions in the Field of Health Care (Approved November 1991)
U.S. Supercomputer Vulnerability (Approved February 1989)
U.S. Technological Leadership and Engineering Employment (Approved August 1990)
What the United States Must Do to Realize the Economic Promise of Space (Approved November 1993)
World Intellectual Property Rights (Approved February 1992)

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TUESDAY, MARCH 28, 1995.

GAS TURBINE-MODULAR HELIUM REACTOR (GT–MHR) PROGRAM

WITNESS

L.D. MEARS, TECHNOLOGY INSIGHTS

Mr. MYERS. Mr. L.D. Mears, Technology Insights. Welcome back. Your prepared statement will be placed in the record and you can proceed for five minutes as you like.

Mr. MEARS. Thank you. Actually, I am here today standing in for Mr. Dave Hoffman, as you will see from the statement there, who is Vice President of PacifiCorp. He has served as Past Chairman of Gas Co-reactor Associates, GCRA, and is the current Chairman of the Utility User Advisory Committee for the gas turbine-modular helium reactor program.

The advisory committee builds, of course, on the past experience of GCRA, plus the ongoing utility user efforts in support of the advanced light water reactor programs. At present, there are 14 different utility user companies and entities that are involved in this advisory committee, and they are listed there in Mr. Hoffman's statement.

The primary role of this advisory committee is to represent the utility user interest in program development; to establish the design requirements; to continue an ongoing design review to assure compliance to those requirements; and to provide the owner/operator perspective in the development of requirements such as O&M activities, owner's cost development, and the overall competitive analysis.

The basis for the utility user and national support for the gas turbine-modular helium reactor, I submit, are indeed impressive. This system offers superior safety with features and margins that basically preclude the concern of a core melt accident, preclude the reliance on AC power equipment or operator actions or inactions, and, actually, precludes the need for evacuation or sheltering of the off-site public.

In evaluating the generation cost, they are competitive with the best fossil and nuclear contemporary alternatives as a result of the high thermal efficiency, the high reliability of the gas turbine cycle, and the low estimated O&M cost. This high efficiency, plus the high burn-up, provides further environmental advantages relative to the other nuclear systems, which results in less waste, less cooling water, and in combination with the enhanced safety features, an ease of siting concerns and promotion of public acceptance of the nuclear option.

Further, there is growth potential in the modular helium reactor. With higher temperatures in the future, with unique process heat applications for the nuclear energy option, such as methanol and hydrogen production; it is basically a technology for 100 years. Such breakthrough potential was noted by the Advanced Reactor Corporation in their 1994 report to the Department of Energy, wherein they stated that the GT–MHR, and I quote, "represents the one of a very few credible breakthroughs in the longer term electricity generation."

Although the GT–MHR is well suited for a broad range of utilities and users, the emerging independent power producers in the United States, it is well suited for many of the developing countries which is an even more enormous market potential for the U.S. investment. To realize this breakthrough potential, technology development must be completed, culminating in a one-module demonstration project.

Steady efforts are under way in Japan and in China, plus there are past struggling efforts in Germany, Russia, and other countries that, all together, offer a variety of attractive models for international cooperation. However, for the U.S. to be a party to and to be able to pursue any such model, stable government support must be established.

Accordingly, the Utility User Advisory Committee urges this subcommittee to continue your steadfast support and to direct the Department of Energy to bring forth an overall program plan to pursue the realization of the GT–MHR's breakthrough potential. Such a plan would be compatible with Subtitle C of the Energy Policy Act of 1992; and, in particular, a government-funded development program through 1998 is called for that would establish the basis for proceeding with the cost shared demonstration project. To support this decision in 1998, $25 million is respectfully recommended for DOE's budget in fiscal year 1996.

Mr. Chairman, that concludes my summary of Mr. Hoffman's statement in support of the gas turbine-modular helium reactor program.

Mr. MYERS. Thank you, Mr. Mears.

[The statement of Mr. Hoffman follows:]

STATEMENT SUBMITTED FOR THE RECORD
APPROPRIATIONS SUBCOMITTEE ON ENERGY & WATER DEVELOPMENT
UNITED STATES HOUSE OF REPRESENTATIVES

GAS TURBINE - MODULAR HELIUM REACTOR PROGRAM

DAVID P. HOFFMAN, VICE PRESIDENT OF
STRATEGIC PLANNING AND BUSINESS PROCESS IMPROVEMENT, PACIFICORP

AND CHAIRMAN OF UTILITY/USER ADVISORY COMMITTEE
FOR THE GAS TURBINE - MODULAR HELIUM REACTOR PROGRAM

Mr. Chairman and Members of the Subcommittee, my name is David Hoffman and I am Vice President of Strategic Planning and Business Process Improvement for PacifiCorp, which is based in Portland, Oregon and provides electricity to over 1.3 million retail customers in seven different states in the West. We are the third largest utility in the West and we operate the Nation's largest open access, high voltage transmission system which, combined with our low electricity production costs, allows us to sell wholesale power to over 50 other entities throughout the West. While PacifiCorp currently relies on coal as the dominant source of our low generation costs, we have a management team experienced with nuclear power and an enlightened outlook on the need for viable alternatives. The world-wide energy market will continue to grow, and the nuclear option must be maintained in spite of demanding issues regarding waste management; public, investor and regulatory acceptance; and the related R&D budget constraints. Based on our experience, assessments, and view of the future, the most promising option in any nuclear revival is the Gas Turbine - Modular Helium Reactor (GT-MHR).

Accordingly, I serve as chairman of the Utility/User Advisory Committee (U/UAC) for the GT-MHR Program and my statement is presented on the Committee's behalf. The current U/UAC constituency is listed below:

Arbeitsgemeinschaft Versuchsreaktor
Baltimore Gas & Electric Company
Duke Power Company
Empire State Electric Energy Research Corp.
Florida Power Corporation
Ohio Edison Company
PacifiCorp
PECO Energy Company
Public Service Company of Colorado
San Diego Gas & Electric Company
Southern California Edison Company
Southern Nuclear Operating Company
Vereinigte Elektrizitaetswerke Westfalen
Virginia Power Company

The U/UAC's role is to establish the utility/user design requirements, to assess the evolving design to assure compliance, and to represent utility/user interests in GT-MHR Program development. Interactions are maintained with the Electric Power Research Institute, the Advanced Reactor Corporation and others to build on the relevant experience gained in the Advanced Light Water Reactor Program.

The GT-MHR is a more advanced, follow-on option to the Advanced Light Water Reactors as well as a complementary option that is ideally suited for constrained sites and smaller increments of capacity expansion. The GT-MHR concept adapts the state-of-the-art power conversion technologies of aircraft and industrial gas turbines, magnetic bearings, compact plate-fin heat exchangers, and high strength, high temperature steel alloy vessels. The gas turbine system eliminates the extensive equipment required for the century-old Rankine steam cycle technology used by other nuclear systems for conversion of thermal energy to electrical power. Combined with the unique high temperature capability of the MHR concept, the GT-MHR offers a net thermal efficiency in the range of 47%, which is nearly 50% higher than other nuclear technologies. Evaluated power costs are attractive due to this higher efficiency, the improvement in reliability associated with the gas turbine power cycle, plus the reduced O&M costs. Further improvements in efficiency and economics are achievable with the future development of even higher temperature fuels.

The cornerstone of GT-MHR technology is a fundamentally simple reactor safety concept that precludes severe core damage and core disarray accidents, an important consideration in gaining enhanced public and investor acceptance of nuclear power. The GT-MHR employs passive design features and inherent characteristics to retain fission products at the source of their generation — within the ceramic coated fuel particles. This design approach assures public safety without reliance on safety systems that require operator action or rely on AC-powered equipment. Resultant safety margins provide the technical basis to eliminate offsite evacuation and sheltering plans. Further, key safety attributes can be demonstrated to the public in full scale testing of the power module.

One of the key benefits to be realized from the GT-MHR's superior safety concept will be eased compliance with nuclear safety regulations. The ability to produce economic power while maintaining compliance with nuclear safety regulations is a primary source of business risks to the owners and operators of nuclear plants in the U.S. and many other countries and a major issue relative to their acceptance of nuclear power. In addition, owner/operator acceptance is enhanced by the GT-MHR's radiation cleanliness which results in low personnel exposures, low radioactive waste volumes and relative ease of decommissioning, all of which have been demonstrated at the Fort St. Vrain HTGR plant. Further, the relatively small power rating of individual GT-MHR modules (~275 MWe) permits incremental capacity additions and adaptation to changing market circumstances plus improved overall generation system reliability.

As with other nuclear alternatives, the GT-MHR offers distinct advantages over fossil based energy options from the standpoint of environmental impact considerations. Within the family of nuclear alternatives, the GT-MHR offers further advantages. For example, per unit of electricity generated, the amount of heavy metal wastes in the once-through fuel cycle is reduced by approximately 75% and the overall decay heat load is reduced by approximately 33%. In addition, cooling water requirements are reduced by nearly 50%, and makeup water requirements are essentially eliminated. With increasing site limitations, the GT-MHR may be strategically valuable for use at retired fossil plant sites that may otherwise be foreclosed due to environmental constraints.

Altogether, GT-MHR attributes should foster acceptance by the public, the regulators, the investors and a broad range of prospective owner/operators, including independent power producers, seeking a competitive, low-risk nuclear option. Further, the GT-MHR is ideally suited for the export market, particularly for developing countries with a high growth of generation demands. In addition, the GT-MHR will establish the technical and institutional base for adapting the MHR to a broad range of process heat applications, including hydrogen and methanol production. The GT-MHR offers tremendous potential for a broad range of utility/users and the Nation as a whole.

Our Nation's commitment to strengthen our future energy security and the base of quality jobs in the U.S., plus reduce our foreign trade deficit, must include a commitment to long range, advanced energy technologies that have high potential, such as the GT-MHR. This logic and vision was expressed in the Energy Policy Act of 1992. In particular, Subtitle C - Advanced Nuclear Reactors provides a framework for developing the GT-MHR to the point whereby informed decisions can be made on whether or not to proceed with a demonstration project. While budget constraints have necessitated schedule adjustments, the programmatic approach within this legislation should be implemented to provide the long sought stability to focus and complete the front-end development elements of the GT-MHR Program. With such stability, opportunities for international cooperation are available to reduce the front-end costs incurred in the U.S. and position the GT-MHR for the global market.

In the near-term, the ongoing Program should continue to focus on the high priority technical and programmatic issues. Key examples are: fuel development and qualification, power conversion system design development and testing, licensing criteria development, and overall Program strategy planning. With regard to the DOE funding level for FY 96, we recommend a budget of $25 million with clear direction to focus on such high priority issues.

In 1994, the GT-MHR Program was reviewed by the Advanced Reactor Corporation as part of the U.S. industry's periodic review of DOE's overall Advanced Reactor Programs. Representing a broad base of U.S. nuclear utilities, their report notes the *"breakthrough"* potential of the GT-MHR for high generation efficiency and states that *"it is strategically important to this Nation to understand better whether or not this powerful potential is real, and if it represents the one of a very few credible breakthroughs in longer-term electricity generation...."*

Throughout the world, the GT-MHR is recognized as an attractive advanced nuclear generation option with further technological growth and spin-off applications for non-electric markets. Although development and demonstration of the technology is required prior to commercial deployment, the forecasted schedule is compatible with current nuclear market realities, particularly in the U.S. As nuclear wastes issues are resolved and fossil fuel prices and/or environmental restrictions limit fossil generation expansion, the nuclear option will be revived, if attractive designs and supporting infrastructure are available. The breakthrough potential of the GT-MHR for quantum improvements in safety, economics and environmental protection warrants a National commitment for its continued development to assure a U.S. base for access to this most attractive nuclear option.

Mr. MYERS. As you are well aware, this committee has long supported HTGR, now the helium, but we are often the only ones that have. Very little support coming from the Department of Energy. And we are told now that no utilities are interested in the helium cooled.

You say 14 are interested; is that——

Mr. MEARS. Yes, and that is the core group that has the most visible interest. And I submit to you that issue that the department has raised consistently is ill-founded and the best of a poor excuse they can come up with for their lack of support there.

Mr. MYERS. And these 14 companies have put some money in of their own?

Mr. MEARS. In the past, through the former predecessor organization, indeed, as many as 35 different companies have contributed about $27 million to this technology. So it has been a hard, long road to hoe. You know it well.

Mr. MYERS. We have been in the middle of it. Mr. Bevill.

Mr. MEARS. Indeed.

Mr. BEVILL. Do you duplicate the work that General Atomic of California is doing.

Mr. MEARS. Not a bit. GA is the industrial pioneer that is the lead of an industrial vendor supplier team. Our effort is representing the perspective owner/operator customer side of it. So we work as a partnership defining the requirements, the needs of the owner/operator to them which fully drives their development programs.

Mr. BEVILL. Thank you.

Mr. MYERS. Well, assuming we could get one licensed and have one on line, these companies would probably be interested in buying this type of a reactor.

Mr. MEARS. They have all maintained that is an option that they feel is important for the future security. As you know well, the utility industry is undergoing a transition in the generation side of the business. Many companies also are building future generation through subsidiaries and I suspect that is the trend that we will see here for the next several decades. But those companies definitely see this as a producible electricity even if they end up buying it from other companies that would actually own the plant.

Mr. MYERS. Okay. Thank you for your testimony.

Mr. MEARS. Thank you.

TUESDAY, MARCH 28, 1995.

FUSION ENERGY PROGRAM

WITNESS

DR. ROBERT W. CONN, DEAN OF ENGINEERING, UNIVERSITY OF CALIFORNIA, SAN DIEGO

Mr. MYERS. Dr. Robert W. Conn, Dean of Engineering, University of California at San Diego.

Haven't got washed away?

Mr. CONN. No, we have not. We have survived the winter but just barely. My friends to the north have had much more trouble.

Mr. MYERS. Dr. Conn, your prepared statements will be in the record and if you would like to summarize you can continue for the next five minutes.

Mr. CONN. Thank you, Mr. Chairman, Mr. Chairman and Mr. Bevill and members of the staff, for inviting me to come and talk with you. It says in my prepared remarks that I have been on various fusion advisory committees. I am a plasma physicist by training, so I have a background in this field and have worked in this field for a long time.

One of the things that I thought I would remark about is that over the years, Mr. Chairman, you have asked and perhaps others have asked what can you show us that you can take back home. I remember that question well. So I thought I might remark.

Mr. MYERS. We are still asking it.

Mr. CONN. And you are still asking it.

Of the machines available, one thing you can now take back home is that we have made something on the order of 10 million watts of fusion power. That is something we could not have said a few years ago. I think it is a dramatic success with respect to the use of this major facility, the TFTR machine at Princeton. So that much has been approved or has been achieved.

In addition, there has been some tremendous scientific advances. And I am assured that other people have talked with you about those, although I would be happy to elaborate at the end if there is some time and if you would like.

What I wanted to note in the few minutes that I have is that the fusion program is the Nation's way of actually supporting the scientific field of high temperature plasma physics. We have no other way of supporting that particular science. So what one does about the fusion program very much affects the science of that field.

One of the things that I think is very critical about that field and that is not well understood is that a tremendous part of American manufacturing is supported and done by plasma physics. The way chips are made in all the computers in this building are made by plasma processing. And the science that underpins how we make those chips came from the fusion program.

I wanted to relate to the committee a story that I think you know fairly well but may not appreciate the connection between the plasma program and the fusion and American competitiveness.

You will recall 10 years ago we were worried about losing the chip business to Japan. A very big issue for the United States. Well, what happened in the last 10 years? Because we are not threatened with losing that chip business to Japan any more, in fact we are in the lead, and the biggest concern we have to be worried about is sitting on our laurels.

What happened is that when the chips got faster, and the little scratches on those chips that represent circuit lines got really small, they needed a new way to make the chip. And the new way to make the chip required plasma, but it required plasma to etch away the surface of these chips and create these circuits that now operated at a pressure inside the machine that was the same as the pressure that we now use in fusion machines when we fill them and light the plasma off.

Used to be they did it at much higher pressure. That pressure they now run these machines at is a thousand times less than they used to use in 1985. And the way these machines operate is completely different. The physics of how those machines operate was developed in the fusion program. And American companies, particularly Lam Research, applied materials, company called Plasma and Materials Technologies, all California companies by the way, have taken that understanding, invented new machines, created reliable devices, and when you combine it with the tremendous chip design capability that the United States has, we have basically recaptured the chip equipment business and we have recaptured this lead in the microelectronics manufacturing area.

We could not have done that if we did not really understand the plasma state at a high temperature. And the only way we make advances in that program is through the fusion program.

Now, I fully understand that you do not support a program because it has spin-off effects, and the purpose of the fusion program is a very noble one, to give the Nation a new energy source for the 21st Century. But I would submit that if you looked at the tax revenues paid by those companies who have recaptured market share over the last 10 years because they knew plasma physics better than anybody else, they have more than paid for the fusion program. And that will continue to occur as time goes on. It will give us the opportunity to maintain that lead.

With respect to the fusion program itself, it is sort of at a threshold but perhaps also at a precipice, and I would remark in closing that the program is one of the most heavily reviewed programs in the government. Guy Stever reviewed for the Department of Energy in 1990 the Fusion Power Advisory Committee, and it was the committee that recommended that the program should go forward and actually they recommended doubling the budget. That did not happen, but that was an outside group's recommendation and was in some sense an indication of the degree of external support.

In 1992, the Panel of the Secretary of Energy's Advisory Board had Charlie Townes, Noble Laureate from UC-Berkeley chair a committee, and they recommended that the program should go forward and they recommended the program should get 5 percent real growth. And that was a recommendation which they made even, they said, if the monies had to come from other programs within the DOE. That was their committee, not a committee of people from the fusion program.

And now, the President's Committee of Advisors on Science and Technology is taking up the question. In fact, their first meeting is tomorrow. They have asked I be a member of that nine person group and I am pleased to be doing it. It is chaired by John Holdrin from UC-Berkeley. Has Charles Vest, President of MIT and others on it. I think it will be able to provide you, Mr. Chairman, with objective, external advice that you can really use to make a decision. So I would ask you to support the program at the levels requested, unless and until, you get this kind of outside review that really shows reasons why to do something else, either up or down.

Thank you, Mr. Chairman.

Mr. MYERS. Well, thank you for your testimony.

[The statement of Mr. Conn follows:]

THE FUTURE OF THE NATION'S FUSION ENERGY RESEARCH PROGRAM

Robert W. Conn
School of Engineering
University of California
San Diego, CA

Remarks for the Record: Hearing Before the House of
Representatives Energy and Water Development
Subcommittee on Appropriations

March 28, 1995

Chairman Myers, members of the subcommittee, I want to thank you for inviting me to speak to you about the Nation's magnetic fusion energy program. For the record, I am a scientist and engineer who has worked in the fields of plasma physics and fusion research, I am now the Dean of Engineering at the University of California at San Diego; I am a past chair of the DOE's Fusion Energy Advisory Committee, (called FEAC); and am the present chair of a newly reconstituted FEAC, though this new committee has met together only once so far.

Over the years, you, Mr. Chairman, and others have asked the fusion program to produce results that you could, so to speak, explain back home why support for the fusion program is a good thing. The fusion program has responded, Mr. Chairman, by demonstrating for the first time the controlled production of about 10 million watts of fusion power. This was accomplished using the Tokamak Fusion Test Reactor (TFTR) at Princeton, and experiments continue.

We should feel good about this success and the progress made in our scientific understanding using other machines in our program such as the DIII-D machine in San Diego. Short of building and running new machines, it's hard to show you more dramatic results than what the program has recently produced.

Yet from my point of view, both as a scientist and now as a head of a major science and engineering enterprise, I can assure you that generating fusion power is not the only recent success.

The fusion program is the Nation's way of supporting the scientific field of high temperature plasma physics while pursuing the goal of a new, environmentally attractive energy source for the Nation. Without this program, we would not have the basis to make the progress we see now, both in plasma science and in fusion power. Nor would we have the basis for the applications we see of plasmas throughout our industries.

Since others have or will address the major new scientific achievements of the fusion program, I want to relate one story about American competitiveness that is relevant to your decision about how to support the magnetic fusion effort.

In the last seven years, the U.S. has taken back the leadership in the microelectronics chip business, particularly the microprocessors business. The Japanese, who had the lead, also had the lead in making and selling quality chip-making equipment. This point about equipment is key and, in my view, contributed to the situation in the mid-1980's.

Let me explain a consequence of not leading in the equipment business. It meant that our competitors could delay making the latest equipment available to U.S. companies while supplying such equipment to Japanese companies.

Then came a sea change. It turns out that the newest chips can only be made in a new generation of equipment. This equipment must be operated at a thousand times lower vacuum pressure than earlier such equipment--and this lower pressure is in fact the same pressure we use in fusion experiments.

So, using knowledge of the plasma state developed in fusion research, American companies, particularly Lam Research and Plasma and Materials Technologies, both in California, invented, developed, and produced a new and superior generation of equipment.

This equipment is available immediately to U.S. chip makers and, together with sharply improved machine performance and quality, and with our tremendous chip design capability, we have recaptured the lead.

One consequence of this success is increased American profits which, among other things, have generated additional tax revenues that exceed what the government has spent on fusion research. Plasma processing of materials will remain a key element in advanced technology, and our further success will depend on our scientific and technology base.

Of course, this spin-off impact is not by itself sufficient to support fusion research, especially in these difficult budget times. The noble purpose of the fusion program is to provide the Nation with a highly attractive energy source for its future. That the program also supports forefront scientific research are the reasons the program is worth your support.

I know, Mr. Chairman, that you are aware of the program's key goals--

- to achieve an ignited, burning plasma;
- to develop and test a potentially better way to optimize the tokamak for use as a power machine; and
- to develop materials for construction that will yield a power plant with the most attractive licensing and environmental features.

International ITER program is a way to cooperate in international science, achieve many of our common goals, and control costs. The Tokamak Physics Experiment machine is a way to test the optimization of the tokamak concept while pushing the frontiers of high temperature plasma physics.

In my view, the technical situation in fusion research has never looked brighter:

- We've learned how to create the conditions for controlled fusion in a magnetic system;
- We've actually produced 10 million watts of fusion power in a tokamak;
- We're designing ITER on a cost-shared basis with other countries. It will produce 1.5 billion watts of fusion power and demonstrate all the technologies for a power plant; and
- We're ready now to start construction on a new national, U.S. tokamak which will enable further optimization of the fusion power plant design before the next major step, which will be a commercial demo plant.

Earlier reviews of the program, by the Fusion Policy Advisory Committee chaired by Dr. Guy Stever in 1990, and by a 1992 Panel of the Secretary of Energy's Advisory Board chaired by Nobel Laureate Charles Townes, all recommended strong support for the fusion program. Recently, the President's Committee of Advisors on Science and Technology (PCAST) has been asked to advise the President and the Nation on how best to proceed. Their report is due in June and their first meeting is, in fact, tomorrow, March 29. The Congress has supported this program well and effectively in the past, and I urge you to support the program's budget request in FY 1996. PCAST will provide you with effective and sound advice, and any adjustments can be considered later this year.

Thank you again, Mr. Chairman, for this opportunity to speak to you today.

Mr. MYERS. As you know, this committee has always supported the program but maybe not adequately like a lot of people would like to see it. So we all share in the responsibility of why it has not moved faster.

But we have some severe problems here when it comes to finding the money to adequately fund the many programs we have responsibility for in this subcommittee alone. So it is a real problem.

Mr. CONN. We appreciate the support the committee has provided in the past, and we ask that you sustain at least until you hear the kinds of recommendations that that group will make to you. I believe they will be objective and give you the kind of sound advice you need.

Mr. MYERS. We have not always had the support of DOE either. So all the responsibility is not necessarily ours. DOE has not gone behind it always.

Mr. CONN. Fair enough, Mr. Chairman. I cannot comment about DOE. That is above my bailiwick.

Mr. MYERS. We can. Thank you. Thanks for your testimony.

Mr. CONN. Thank you very much.

TUESDAY, MARCH 28, 1995.

NATIONAL IGNITION FACILITY PROJECT

WITNESS

JOHN STEIN, VICE MAYOR, CITY OF LIVERMORE

Mr. MYERS. John Stein, Vice Mayor of the city of Livermore, California.

Mayor Stein, we are pleased to have you. Your prepared statement will be placed in the record and you may proceed for the next five minutes as you would like.

Mr. STEIN. Thank you, Mr. Myers and Mr. Bevill.

I am John Stein, the Vice Mayor of Livermore. Livermore is a city of 63,000, located about 40 miles southeast of San Francisco, and I am here to support the National Ignition Facility project, which is of critical importance to the city of Livermore. The Mayor of Livermore, Cathie Brown was scheduled to testify on this important issue, but she just recently had surgery and was unable to make it.

The National Ignition Facility, or NIF, is the cornerstone of the DOE's science-based stockpile stewardship program. If constructed, the NIF facility would be the size of a football stadium and would contain the world's most powerful laser. It will be able to test nuclear weapons' performance without requiring conventional underground testing.

Light from 192 laser beams would flash down a labyrinth of mirrors, shooting a thousand times the output of all the power stations in the U.S. on to a single tiny pellet of super-cold hydrogen fuel. The atoms in the pellet would fuse together, after being squeezed to a density 20 times that of lead and heated to a searing 200 million degrees Fahrenheit, hotter than the surface of the sun. A miniature thermonuclear blast of fusion energy will occur. Beyond the project's core defense mission, the National Ignition Facility will give the researchers the tools to help develop inertial fusion, a clean new source of energy.

Fusion power could become an important component of the world's energy inventory, reducing reliance on other less reliable or desirable sources of energy. The NIF will also further research in basic science by creating conditions of high temperature and density like those within a star that have been previously unattainable in the laboratory research.

U.S. industry will benefit from new technologies devised to satisfy NIF's engineering and optics requirements, many of which will be developed in coordination with U.S. companies and transferred to them throughout the general industry. High-tech jobs will be created to design, develop, and maintain the facility's components. Seventy-five percent of the project's approximately $1 billion costs for construction and operation will pass directly through to industry, injecting funds into the U.S. economy in a broad range of technical categories.

No doubt you will hear from many experts about what the NIF will and will not accomplish. My purpose here in testifying before you, Mr. Chairman, is to impress upon you that the overwhelming majority of the residents of the city of Livermore support the NIF project. The Lawrence Livermore National Laboratories are located just on the city borders and more than 40 percent of the employees that work at Lawrence Livermore live within the city limits.

It is also important to realize that support for the NIF reaches far beyond the boundaries of the city of Livermore. Surrounding cities in the East Bay strongly support the National Ignition Facility. The cities of Tracy, Pleasanton, Fremont, Dublin, Lathrop, Stockton, Escalon, and Ceres have sent letters of support regarding the NIF or have formally adopted resolutions of support for the project. Both the Alameda County Economic Development Advisory Board, the Bay Area Economic Forum, the University of California, and the Alameda County's Mayors Conference, have sent strong letters of support or resolutions of support for the National Ignition Facility to Secretary O'Leary. The majority of the California congressional delegation, as well as Governor Pete Wilson, strongly supports the NIF, as well as locating the project at Lawrence Livermore.

This brings me to my next point. It makes sense to build the National Ignition Facility at Lawrence Livermore Laboratories. Lawrence Livermore already operates the world's largest laser, the Nova project, and is recognized as a world leader in high energy laser research and development focused on inertial confinement fusion. The laser technology developed at the Lawrence Livermore Lab will provide the foundation upon which the NIF will be built. Lawrence Livermore also has relevant infrastructure, the highly skilled personnel, the facilities, and the equipment to support an advanced science project such as the National Ignition Facility. In fact, the Department of Energy Secretary O'Leary announced last fall that Livermore should be the preferred site for the National Ignition Facility.

Lawrence Livermore is located within a region of technological excellence, a region with world class universities, five eminent research laboratories, and an array of high-tech and biotech industries businesses not duplicated anywhere else in the world. This unique combination of assets in the San Francisco Bay regional facility, in the San Francisco Bay region, rather, will facilitate the commercial application of research from public institutions to the private sector and provide easily accessible sources of new ideas, new technologies, and qualified workers.

The city of Livermore supports the Department of Energy process to investigate the nonproliferation issues contained within the scope of work. Relevant Federal agencies will provide their view of the impact that the developing NIF would have on the ability of the U.S. Government to negotiate, conclude, and implement the comprehensive test ban treaty and the nonproliferation treaty extension.

A programmatic environmental impact assessment is also being undertaken before reaching the Key Decision One Prime that will ensure public involvement. The city of Livermore supports these efforts and believes it is critical to ensure that NIF will aid the goal of nuclear nonproliferation. I would caution, however, that the Department of Energy reach a quick and efficient decision on this matter.

Thank you for the opportunity to testify before your subcommittee on this issue regarding Livermore's strong support of the National Ignition Facility project.

Mr. MYERS. Thank you, Mayor, for your fine testimony.

Mr. STEIN. Thank you. If you have any questions, I would be glad to answer them.

Mr. MYERS. Thank you.

[The statement of Mr. Stein follows:]

TESTIMONY BY JOHN STEIN, VICE MAYOR
CITY OF LIVERMORE, CALIFORNIA
BEFORE THE
HOUSE ENERGY AND WATER APPROPRIATIONS SUBCOMMITTEE

MARCH 28, 1995

Mr. Chairman. members of the Subcommittee, I am John Stein, the Vice-Mayor of the City of Livermore. Livermore has a population of 63,000, and is located approximately 40 miles east of San Francisco in the East Bay. I am here to talk about the National Ignition Facility project, which is of critical importance to the City of Livermore. The Mayor of Livermore, Cathie Brown, was scheduled to testify before your Subcommittee, but was unable to come to Washington due to recent surgery.

The NIF is considered to be the cornerstone of the DOE's Science-Based Stockpile Stewardship Program. If constructed, the NIF facility would be the size of a football stadium and would contain the world's most powerful laser that would be able to test nuclear weapons without requiring conventional underground testing of the nuclear arsenal. Light from 192 laser beams would flash down a labyrinth of mirrors, shooting a tremendous bolt of energy a thousand times the output of all the power stations in the United

States onto a single tiny pellet of super-cold hydrogen fuel. The atoms in the pellet would fuse together, after being squeezed to 20 times the density of lead and heated to a searing 200 million degrees Fahrenheit, hotter than the surface of the sun. A miniature thermonuclear blast of fusion energy would occur. Beyond the project's core defense mission, the NIF will give researchers the tools to determine if inertial fusion can be developed into a clean new source of energy.

Fusion power could become an important component of the world's energy inventory, reducing the reliance on other less desirable sources of energy. The NIF will further research in basic science by creating conditions of high temperature and density like those within a star that have been previously unattainable in laboratory research. U.S. industry will benefit from new technologies devised to satisfy NIF's engineering and optics requirements, many of which will be developed in coordination with U.S. companies and transferred through them out to the general industrial world. High-tech jobs will be created to design, develop and maintain the facility's components. Seventy-five percent of the projects $1 billion costs for construction and operations will pass directly to industry, injecting funds into the economy in a range of technical categories.

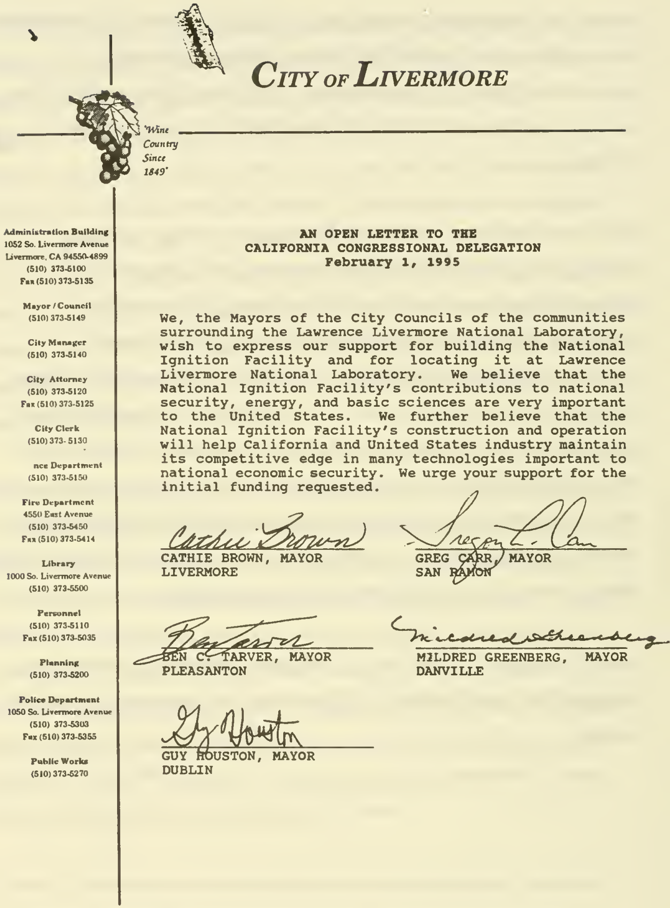
No doubt you will hear from many experts about what the NIF will and will not accomplish. My purpose in testifying before you today, Mr. Chairman, is to impress upon you that the overwhelming majority of the residents in the City of Livermore support the NIF project. The Lawrence Livermore National Laboratories are located just outside of the City of the Livermore, and more than 40 percent of the employees of Lawrence Livermore live in the City of Livermore. It is also important to realize that support for the NIF reaches far beyond the boundaries of the City of Livermore. Surrounding cities in the East Bay strongly support the NIF. The cities of Tracy, Pleasanton, Fremont, Dublin, Lathrop, Stockton, Escalon, Ceres, have sent letters of support regarding the NIF or have formally adopted resolutions of support for the project. Both the Alameda County Economic Development Advisory Board, the Bay Area Economic Forum, the University of California and the Alameda County Mayors Conference, have sent strong letters of support or resolutions of support for the NIF to Secretary O'Leary. The majority of the California congressional delegation, as well as Governor Pete Wilson strongly supports the NIF, as well as locating the project at Lawrence Livermore.

Which brings me to my next point. It truly makes sense to build the NIF at Lawrence Livermore. Lawrence Livermore operates the world's largest laser, Nova, and is recognized as the world's leader in high energy laser research and development, including Inertial Confinement Fusion. The laser technology developed at Lawrence Livermore will provide the foundation upon which the National Ignition would be built. Lawrence Livemore Lab also has the relevant infrastructure, the highly-skilled personnel, the facilities and the equipment required to support an advanced science project such as the NIF. In fact, DOE Secretary O'Leary announced last fall that Lawrence Livermore should be the preferred site for the NIF.

Lawrence Livermore is located within a region of technological excellence -- a region with world-class research universities, five eminent research laboratories, and an infrastructure of high-tech and biotech industries which has not been duplicated anywhere else in the world. This unique combination of assets in the San Francisco Bay Region facilitates the commercial application of research from institutions to the private sector, and provides easily accessible sources of new ideas, new technologies, and qualified workers.

The City of Livermore supports the Department of Energy process to investigate the nonproliferation issues contained in the Scope of Work. Relevant federal agencies will provide their view of the impact that developing NIF would have on the ability of the U.S. Government to negotiate, conclude and implement a comprehensive test ban treaty and the non-proliferation treaty extension. A programmatic environmental impact assessment is also being undertaken before reaching the Key Decision One Prime that will ensure public involvement. The City of Livermore supports these efforts and believes it is critical to ensure that NIF will aid the goal of nuclear non-proliferation. I would caution, however, that the Department of Energy reach a quick and efficient decision on this matter.

Thank you again, Mr. Chairman, for the opportunity to testify before your Subcommittee regarding the City of Livermore's strong support for the NIF project.



CITY OF LIVERMORE

'Wine
Country
Since
1849'

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AN OPEN LETTER TO THE
CALIFORNIA CONGRESSIONAL DELEGATION
February 1, 1995

We, the Mayors of the City Councils of the communities surrounding the Lawrence Livermore National Laboratory, wish to express our support for building the National Ignition Facility and for locating it at Lawrence Livermore National Laboratory. We believe that the National Ignition Facility's contributions to national security, energy, and basic sciences are very important to the United States. We further believe that the National Ignition Facility's construction and operation will help California and United States industry maintain its competitive edge in many technologies important to national economic security. We urge your support for the initial funding requested.

Cathie Brown
CATHIE BROWN, MAYOR
LIVERMORE

Gregory L. Carr
GREG CARR, MAYOR
SAN RAMON

Ben Tarver
BEN C. TARVER, MAYOR
PLEASANTON

Mildred Greenberg
MILDRED GREENBERG, MAYOR
DANVILLE

Guy Houston
GUY HOUSTON, MAYOR
DUBLIN

FAX 3-15-95 DATE # PGS 1
TO Pat Jordan
CO. FAX#
FROM Lee Horner AVERY FX-ID

RESOLUTION NO. 2-95

A Resolution of the Alameda County Mayors' Conference in Support of Building the National Ignition Facility at Lawrence Livermore National Laboratory

WHEREAS, the National Ignition Facility (NIF) will make a significant contribution to national security, energy, and basic science that is very important to the United States; and

WHEREAS, the NIF's construction and operation will help California and United States industry maintain its competitive edge in many technologies important to national economic security; and

WHEREAS, the Lawrence Livermore National Laboratory (LLNL) currently has the personnel and other support services in place to facilitate the building of the NIF, and LLNL has proven over the past forty years to be able and capable of undertaking a project of this magnitude.

NOW, THEREFORE, BE IT RESOLVED that the ALAMEDA COUNTY MAYORS' CONFERENCE unanimously supports locating the NATIONAL IGNITION FACILITY at LAWRENCE LIVERMORE NATIONAL LABORATORY, and accepts the DEPARTMENT OF ENERGY process that has been established to investigate the nonproliferation issues associated with the NATIONAL IGNITION FACILITY.

AND BE IT FURTHER RESOLVED that at the conclusion of the technical study of the nonproliferation issue, the ALAMEDA COUNTY MAYORS CONFERENCE will accept the findings and recommendations contained in the Final DEPARTMENT OF ENERGY Report.

I hereby certify that this is a true and accurate copy of the Resolution adopted unanimously by the Alameda County Mayors' Conference at its meeting of March 8, 1995.

Nancy Ortenblad
NANCY ORTENBLAD
Executive Secretary

TUESDAY, MARCH 28, 1995.

NUCLEAR PROGRAMS AND CLEANUP

WITNESS

ROBERT WAGES, PRESIDENT, OIL, CHEMICAL AND ATOMIC WORKERS INTERNATIONAL UNION, AFL–CIO

Mr. MYERS. Robert Wages, President of the Oil, Chemical and Atomic Workers International Union, AFL–CIO.

Your prepared statement will be placed in the record and you may proceed as you like for five minutes.

Mr. WAGES. Thank you. Good afternoon, Mr. Chairman.

OCAW, as we are referred to most of the time, represents atomic energy workers throughout the DOE complex. We have been here before talking about how to treat those workers, but more than that also how to treat the communities in which they reside.

I first want to thank the Chairman for your efforts in resisting the effort to take $28 million of the EM budget, and even though I thought it was well-intentioned at the time, we think all of the money that is there and that is spoken for needs to go into the environmental restoration and the remediation program of the department.

Mr. MYERS. Didn't work but we tried.

Mr. WAGES. I also want to kind of summarize my comments by saying—I want to talk a little bit about the employment EM budget and the EM program and I would preface those remarks by noting that when you read the Wall Street Journal, as I have, and it talks about the boondoggle at Hanford and then a few months ago it talked about the boondoggle at Fernald, I wonder how often you can come and talk about these boondoggles and all the money. But the fact is that we have an obligation. We, for decades, have been producing weapons, for decades have been spoiling the environment, for decades have not paid a whole lot of attention to it, and now, as my dad used to say, it is time to pay the fiddler.

When I look at the EM budget and what is proposed, it is down $250 million from last year. They are proposing several billion more in cuts over the next several years, which may or may not happen; but in the final analysis, the Congress, this government, has a responsibility to the people that worked in these sites and the people who live near them to make sure that the money is well spent and that we do not avoid what our obligation is simply because there have been a lot of screw-ups along the way. So I am going to urge you, Mr. Chairman, to keep your eye on that ball, because it is an awfully important one for all of us.

There are several aspects to the funding that I want to touch on. One of course is the EM budget itself, much more reduction in terms of the EM budget. We are going to find ourselves where DOE cannot comply with its own compliance agreements that it has out there with States, tribes, different agencies, to ensure that the cleanup takes place in marked time and it take place in a self and health—in a safe and healthful way.

We are also suggesting that we have to help the communities in which some of this transition is going to occur. And so we are here to support the worker and community transition request for $100 million, which is in the current budget request. And there are a couple of reasons for that. The communities absolutely have to have some ability to transition, even if you are talking about privatization, from where they are at now to where we propose they go. And it is also important from the department's standpoint to permit them to have some ability to plan work force restructuring.

What is going on right now on the sites, it is like the wild, wild West. It is whoever the biggest gun slinger is at the time. And we do not think that is producing many efficiencies. We really encourage the subcommittee and the full committee to take stock of the fact that if there is a way to plan, maybe there is some efficiencies to be gained in the whole course of work force and community restructuring.

The fact there have been unmitigated failures over the last few decades, does not mean that we cannot plan for a change for some successes. And we think there are some efficiencies out there that we can obtain.

Two other issues I want to comment on. One is the $222 million request for environmental safety and health. And specifically I want to point out what we believe very strongly is an obligation to monitor the workers who have been exposed to radioactivity out on these sites.

I would invite you sometime to talk to workers who are suffering displacement, or looking at the prospects of not being able to get other employment down the road, and once you do, you understand the need for medical monitoring. That has been in place since 1992 and not a bit has been done with it. We need funding, we need protocols, and we need a mandate from the Congress that that takes place.

We would also, just in conclusion, suggest that a continuation of the funding for the HAZWOPER training going on now with the workers including some of the community folks for continued environmental training on the sites in conjunction with DOE and NIEHS would be very important. We would appreciate your support for that.

Mr. MYERS. Thank you very much, Mr. Wages.

Mr. WAGES. Thank you.

[The statement of Mr. Wages follows:]

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Statement of
Robert Wages, President
Oil, Chemical & Atomic Workers International Union
Before the Energy and Water Subcommittee
Committee on Appropriations
U.S. House of Representatives
March 28, 1995

Mr. Chairman, distinguished members of the Subcommittee, I appreciate the opportunity to discuss the U.S. Department of Energy's FY 96 budget request, downsizing plans, and mechanisms to improve contractor management efficiency.

The Oil, Chemical & Atomic Workers Union (OCAW) represents operations, maintenance, waste management, remediation, emergency response, technical and laboratory workers at nine (9) U.S. Department of Energy (DOE) facilities including Hanford, Idaho National Engineering Labs, Mound, Portsmouth, Paducah, Oak Ridge (K-25), Grand Junction, Brookhaven and Argonne East and West. I will focus on the following six (6) areas in my statement:

1. **The need to fund the Office of Environmental Management's (EM) FY 96 budget request of $6.6 billion for the weapons complex cleanup programs;**

2. **Continued funding of $10 million for the joint DOE/NIEHS hazardous waste operations and emergency response (HAZWOPER) health and safety training program within the EM program;**

3. **Support for the $100 million request from the Office of Worker and Community Transition to mitigate layoffs and implement the workforce restructuring provisions of Section 3161 of the FY 93 Defense Authorization Act;**

4. **Support for the Office of Environment Safety & Health budget request of $222.6 million, but redirect funds from discretionary state health department grants into the statutorily required medical surveillance for former defense nuclear workers who are at high risk of disease from workplace exposures;**

5. **Have DOE establish numerical percentage targets for reductions in indirect overhead costs for all DOE sites to meet (without compromising safety), as the hourly workforce is drowning in excessive layers of contractor management; and**

6. **Require the Assistant Secretary for Environmental Management to promulgate regulations to standardize the economic analysis and assumptions that go into "make-or-buy" and privatization**

decisions. Testimony before the former Energy and Commerce Committee reveals economically indefensible conclusions when deciding whether to have contractors self-perform, subcontract or privatize functions.

1. To Manage the Weapons Complex Cleanup and Honor Compliance Agreements with the States Require Full Funding for DOE's Environmental Management Budget Request of $6.59 Billion

OCAW supports the DOE's FY 96 budget request of $6,591.7 million for the Office of Environmental Management (EM), as this is the minimum required to meet its compliance obligations with the states, and protect worker safety and health, develop technologies to reduce future costs, and reduce the backlog of unstable wastes and contamination. The EM budget for FY 96 represents 4% cut ($250 million) decrease from FY 95 funding levels for base program requirements (work done in both FY 95 and FY 96). In FY 96, EM will assume responsibility for $843 million in nuclear materials and facility stabilization at Savannah River, Mound and Pinellas. The Administration's $5.5 billion in proposed cuts to EM between 1997-2000 will place the DOE wildly out of compliance with its tri-party agreements beginning in 1997.

The government's moral and legal obligations to contain and manage the monumental Cold War legacy left behind from the nuclear weapons complex should not be sacrificed for politically opportunistic "middle class tax cuts".

We are aware of Congress's desire to balance the budget. We are mindful of DOE's history of wasteful procurement practices and bloated overheads. However, we believe that in FY 96 the EM program can turn the corner on many of its historical problems by eliminating costly layers of overheads through very painful reductions of 12,000 contractor employees. Assistant Secretary Grumbly has publicly stated that "there are too many suits" running around the DOE sites without enough to do.

Cutting "fat" in the DOE system is easier said than done. Fat is marbled throughout the system, and is not clumped together awaiting a sharp knife. DOE contractor management has difficulty in pruning its white collar ranks, as evidenced by ratios of white to blue collar workers of up to 4:1. To protect their management ranks, contractors may find it more convenient to (1) cut those who are needed to execute the hands-on work in order to show head count reductions, (2) pay out costly severance, and (3) then hire subcontractors to do the same work without ever reducing bloated layers of management. We'd say this 1-2-3 = "wrongsizing". But, wrongsizing may result without the right Congressional oversight.

Many of the existing hourly workers have been managing fissile materials for decades, and their skills are critical to safely managing and storing unstable fissile materials such as pyrophoric plutonium. Successful workforce restructuring requires vigilant contractor oversight to ensure that skills mix requirements are identified and then matched with the skills of the incumbent workforce. At present, DOE's capabilities are limited in this area, and we fear many cuts will have to be made before DOE has sufficient workforce planning data and expertise.

When DOE added 1,200 new federal employees to better oversee and control its contractors last year, the DOE Field Offices around the country were required to compete against each other for these limited slots, based on which offices would obtain the highest return on the personnel investment. A comparable level of care is required when downsizing so that DOE does not discard the needed employees in whom its has already made large taxpayer-funded investments in training and then hire and train a new group of workers all over again.

DOE's "cleanup" program involves far more than cleanup--and may be misnamed. In fact, traditional "cleanup" only involves 27% of the DOE's budget. There are four main areas of EM activity.

o The most urgent and high-risk activities are stabilizing and maintaining a large number of nuclear materials and facilities. For example, reprocessing plants, which are no longer needed for the extraction of weapons grade plutonium, have to be stabilized in order to avoid criticality events involving radioactive materials. Likewise, leaks, explosions, theft, terrorist attack or radiation exposure must be prevented. Maintaining these facilities has become more difficult because many are more than 40 years old; there are no reliable as-built diagrams; and many structures have begun to deteriorate--which has already contributed to fatalities.

o The second area of activity is managing large amounts of waste, including weapons complex legacy waste, as well as non-defense nuclear reactor waste, and the debris from the accident at the Three Mile Island reactor. **Most waste generated by the Energy Department is radioactive, and therefore cannot be eliminated--it can only be contained while its radioactivity diminishes.** DOE is building and operating a number of facilities to prepare waste for disposal. DOE must also maintain vigilant oversite of potentially explosive underground tanks at Hanford that hold millions of gallons of high-level mixed and radioactive waste.

o A third area of the EM program supports international nuclear non-proliferation policies, such as importing spent fuel from foreign research reactors because they contain weapons grade uranium of U.S. origin. This reduces the international trade in weapons-usable highly enriched uranium.

- The fourth major area is the environmental restoration part of the program, which is what people envision when the program is described as "cleanup". This includes activities that can't be seen, such as containing the spread of radioactively contaminated groundwater through pumping and treating, and more visible actions such as excavating leaking drums of toxic waste, and decontaminating and decommissioning buildings and reactors.

Cutting DOE's budget below the Administration's request will place DOE in the untenable position of choosing between violating its legally binding compliance agreements, or reducing the margin of safety at its sites, or eliminating the development of technologies needed to overcome technological roadblocks.

Cuts will also increase the total life-cycle cost of cleanup. For example, the Rocky Flats site maintains seven buildings with critical systems required to safely store plutonium. DOE can reduce "landlord" costs by $100 million/year simply by consolidating these materials into one building. However, this will require an up-front investment that cannot be made if the budget is cut. We note with concern comments made by Assistant Secretary Tom Grumbly that further cuts will, at some point, reduce his ability to assure that radioactive materials will be safely managed.

The federal government must not walk away from its obligation to these nuclear sites and communities by de-funding compliance agreements. Twenty-five state attorney generals made it clear in a January 17, 1995 letter that they are prepared to renegotiate agreements based on risks, but not to renegotiate away the obligation to fulfill the cleanup mission. Initially, the DOE made commitments to citizens of the states that are home to these sites to remediate them within 30 years. While that time frame may be unrealistic, given the total cost, the available technology and the physics of long lived radioactive materials, the government cannot walk away from its responsibilities and commitments. The weapons complex cannot be left as an unfunded federal mandate for the states to contend with. Before Congress decides to make a new contract with America, it needs to honor the one it has with the states and communities that are left shouldering the radioactive legacy of the Cold War.

2. Worker Health and Safety Protection at Nuclear Facilities

We support DOE's request of $10 million for Hazardous Waste Operations and Emergency Response (HAZWOPER) training for remediation and waste management workers at defense nuclear facilities. This program, which is mandated by OSHA regulations for private sector workers, supports the prevention of work-related injury and illness associated with hazardous waste operations through the National Institutes of Environmental Health Sciences (NIEHS) model worker training grants program. As DOE shifts the mix of work from characterization studies to hands-on remediation projects, the number of workers at risk will increase. In its first year, the program delivered 145,000 hours of cost-effective direct training.

The HAZWOPER worker training program will pay substantial dividends in lower worker compensation costs and increased productivity. Unique features of these high-quality programs include effective safety training of workers by peers who have first hand knowledge of the work-place hazards; concentration on appropriate adult education techniques; and the application of practical hands on training. The EM program is assured the highest level quality training through NIEHS directed evaluations, peer reviews and site visits.

This program was originally authorized pursuant to Section 3131 of the FY 92 Defense Authorization Act (42 U.S.C 7274d), and funds were appropriated by this Subcommittee. We ask the Subcommittee to ensure that funds for the HAZWOPER training program are appropriated and identified in the FY 96 Energy and Water Appropriations bill.

3. **Workforce/Community Transition Funding is Essential at a Time of Dramatic Downsizing**

OCAW supports the DOE's budget request of $100 million for the Office of Worker and Community Transition to cover the costs associated with workforce restructuring plans that are required by Section 3161 of the FY 93 Defense Authorization Act (42 U.S.C. 7274h).

The DOE has announced that it is severing 17,508 contractor employees in FY 95 and FY 96. Severance, retraining, outplacement and relocation assistance costs that are associated with workforce restructuring plans are estimated to cost $300 million in FY 96. Funds will come from two sources: (1) $100 million from the Office of Worker and Community Transition budget for workers who lose their jobs from the cessation of nuclear weapons production; and (2) $200 million from the EM budget for cuts associated with "productivity improvements" (*i.e.* reducing overheads). Mitigating impacts of job loss is the least that can be done for those who served the nation's national defense needs in highly hazardous nuclear production facilities--often at peril, or ultimate injury, to themselves.

Section 3161 requires the Secretary of Energy, upon a determination that a change in the workforce is necessary at a defense nuclear facility, to prepare a workforce restructuring plan and to provide 120 days advance notice. Section 3161 requires that the objective of each workforce restructuring plan is to minimize layoffs, through (1) preference in any hiring at DOE facilities, to the extent practicable, and (2) retraining in environmental restoration and waste management, to the extent practicable.

In addition, Section 3161 mitigates layoffs through early retirement and attrition programs. However, the rapid downsizing of the workforce--caused by the planned $5.5 billion cuts to EM program budget authority between 1997-2000--has caused a large number of involuntary separations. Amplifying the dislocations is DOE's push to increase subcontracting and privatization.

The Congressional authors of Section 3161 recognized that nuclear weapons workers were potentially stigmatized as "glow-in-the-dark" workers as a result of their employment in the DOE complex. Congress provided the equivalent of a "veterans preference" because these workers, if forced to seek new employment, face prospective employers who might be reluctant to incur the added health insurance liability costs associated with a worker perceived to be at high risk. The statute's authors also noted that it made good economic sense to convert many of these "veterans of the Cold War" to DOE's EM mission, whenever practicable. Much of the "new work" is similar to the "old work" done at DOE weapons facilities, such as decontamination, decommissioning, waste management and handling radioactive spent fuel and plutonium. Thus, in many cases, it is very practicable for defense nuclear workers to beat swords into ploughshares.

As noted above, dislocation is being driven by two sources within DOE: (1) budget cuts, and (2) increased reliance on subcontracting and privatization. The second "driver" has the potential to force the current workers out one gate and pull replacement workers in another gate to do the same task, frustrating the legislative intent behind Section 3161. DOE's efforts to mesh its procurement reform initiatives with the objectives of Section 3161 have met with mixed success. There exists widely used, cost-effective models, such as "employee leasing" (employer managed labor pool), to transition workers from contractor to contractor as a way to protect pension vesting that would otherwise be lost as various subcontractors come and go from a site.

An employer managed labor pool functions by placing employees on the payroll of the prime contractor and allowing subcontractors to borrow these employees on a project-by-project basis. While the employees are loaned to the subcontractors, the employees work under subcontractor supervision. Once the project is completed the employee would be returned to the prime contractor for reassignment. If no projects exist which utilize the employee, the employee would be placed on layoff and utilized whenever work is available with a prime, sub or privatizing entity. Employee loaning or leasing arrangements have been used at several DOE sites and in the private sector, but has not been incorporated into the policies of the Office of Worker and Community Transition.

Specific advantages of employee leasing include:

- The DOE only buys the labor it needs and no more;
- Avoids paying subcontractor markups on labor costs;
- Avoids the necessity for payment of costly severance pay where required by state or federal law or labor contract;
- Centralization of personnel records for monitoring radiation exposure;
- Continuity of pension vesting and health insurance benefits.

To the extent that the Department can implement a cost-effective employee leasing solution, it will fulfill its responsibility to honor the service of these "veterans of the Cold War" while simultaneously honoring the pocketbook of the taxpayer.

In addition to supporting the $100 million budget request, we urge the Subcommittee to ask DOE to take a hard look at the economic benefits and practicability of employee leasing as a means to implement Section 3161 and promote procurement reform.

4. Funding the Office of Environment, Safety & Health Is Vital, But Health Risks to Former Workers Mandate a Redirection of Budget Priorities From Health Studies to Medical Surveillance

OCAW supports the $222.7 million request for the DOE's Office of Environment, Safety & Health. This Office, under the capable leadership of Assistant Secretary Tara O'Toole, has been vital in prioritizing the major worker safety risks at DOE sites.

The recent Plutonium Vulnerability Assessment uncovered 299 fire, criticality and radiation hazards posed by unstable or improperly contained plutonium at 13 sites. The recent Chemical Safety Vulnerability Report found that DOE has massive quantities of chemicals stored at its sites under conditions that are sometimes well below acceptable industry standards, leading to releases of toxic chemicals at an average of once a month. These investigations have prioritized DOE spending to deal with the worst risks first.

Nonetheless, we are disturbed that Office of Environment Safety and Health has yet to implement the medical surveillance provisions of Section 3162 of the FY 93 Defense Authorization Act (42 U.S.C. 7274i) as they relate to former defense nuclear workers. Section 3162 requires the DOE to:

"establish and carry out a program for the identification

> and on going medical surveillance of current and former DOE employees who are subject to significant health risks as a result of the exposure of such employees to hazardous or radioactive substances during such employment."

The DOE was supposed to "commence carrying out the program . . . not later than one year after October 23, 1992."

Workers are monitored for internal depositions of ionizing radiation while employed at a DOE site; however, when they are dislocated or retire, this medical monitoring ceases--leaving workers who have accumulated ionizing radiation or heavy metals in their bodies without follow-up care. With a large number of workers being dislocated due to budget cuts this year, the lack of medical monitoring for former radiation workers becomes all the more apparent. Yet DOE's FY 96 budget request is virtually devoid of funding for medical surveillance for former workers.

The ES&H Office is currently funding a number of state health departments to do health studies near nuclear weapons production facilities. ES&H also funds epidemiology studies in DOE communities through the Centers for Disease Control. From our perspective there is an imbalance in resource allocation: there is ample funding for two sets of health studies for communities, but only trivial funding for former workers[1]. Workers, in many cases, were at substantially higher risks than community residents, due to their proximity to radioactive and hazardous materials.

There is yet another legacy of Cold War production: the adverse health conditions experienced by workers of Beryllium Corporation of America (also formerly Kawecki Berylco, Inc. and Cabot Corp.) located in Hazelton, Pennsylvania. The facility processed beryl ore from 1957-81 and supplied processed beryllium to Rocky Flats. The plant was notorious for problems; AEC itself temporarily closed the plant in the 1950's due to health and safety problems.

There are 250 hourly workers still alive, many of whom are experiencing symptoms that are potentially linked to their beryllium exposure, which written reports indicate were 10-50 times the OSHA allowable limits. There has been no systematic medical program since the plant closed, and efforts to induce the DOE and the current owners to carry out a medical program have been unsuccessful. OCAW urges the Subcommittee to direct DOE to institute a program of screening and diagnostic evaluation for these workers. The cost of a screening evaluation for beryllium disease is only $350.00/worker.

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[1] With the exception of the existing beryllium surveillance program and a Rocky Flats health program for former radiation workers, DOE's implementation of surveillance requirements for former workers subsequent to the passage of Section 3162 is virtually non-existent.

Pitting funding for worker medical needs against community health studies is clearly undesirable; however, **the gross imbalance in resource allocation compels us to ask that the Subcommittee direct the Office of Environment, Safety & Health to phase out funding to the state health departments, for which there is no statutory mandate, and redirect the funding into the Congressionally mandated implementation of medical surveillance of former defense nuclear workers.**

5. Require DOE to Cut the Fat, Not the Cleanup Workers

The blue collar workforce which we represent wants DOE to get the work done as cost-effectively as possible. Unfortunately, contractor largesse and DOE's unwillingness or inability to reduce contractor overhead costs has made hourly workers appear uncompetitive. Consider this: at the Mound facility in Ohio, EG&G bills $64.05 per hour for a skilled craftsperson's time--uncompetitive by most measures. When analyzing the costs, there is a 257% overhead rate, which totals $46.10 per hour, on top of the $17.95 per hour wage costs paid to skilled trades or foremen.[2] **Anyone can see that if these workers labored for free, they still wouldn't be competitive due to excessive contractor overheads!!**

We ask that the Subcommittee direct the DOE to identify, publish, and order fixed percentage reductions to the contractor's indirect overhead rates at each site, provided that worker safety will not be compromised.

6. DOE Must Establish Regulations to Prevent Economically Indefensible Procurement Decisions

As part of DOE's procurement reform efforts, the DOE has promoted increased use of subcontracting and privatization. However, the decisions over what to subcontract and privatize have not been subjected to a consistent or economically defensible methodology to determine whether to "make-or-buy".

Testimony before the former House Energy and Commerce Subcommittee on Oversight and Investigations on December 1, 1993 revealed that a major DOE contractor at Fernald subcontracted work even if it cost the government more (pp.158-159, Serial 103-85).

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[2] $7.50 of the $46.10 per hour is payroll fringe costs. The balance are indirect "common site" overheads, contingency costs, and general & administrative overheads.

Mr. Dingell: (chair) It is apparently FERMCO's position that this subcontracting should be done even if subcontracting is more expensive. Do you agree with that?

Mr. Grumbly: (DOE) No, I don't agree with that. There is a specific exemption in the contract and in our rules that indicates that the contractor has the ability to come to us when they encounter that situation and do the work themselves.

Mr. Dingell: Mr. Kaufman [President of FERMCO] stated he doesn't even bother to do cost-benefit analysis in these kinds of judgmental areas because of that requirement. Again does that comport with DOE's intentions under the ERMC approach?

Mr. Grumbly: We don't want people to check their common sense at the front door when they come in.

The problem is that common sense is still being left at the front door. For this reason, DOE must set forth, by regulation, a consistent and logical method to analyze whether a decision to contract-out or privatize is supported by economic, environmental, and safety and health factors. Under no circumstances should DOE leave contractors to their own devices to formulate an ad hoc protocol for this analysis, as mindless decisions to subcontract have actually increased, rather than decreased costs.

DOE needs to examine the final cost to the government from subcontracting, as prime contractors tack on a "mark-up" to subcontractor invoices before billing the government. DOE has invested millions of dollars to train and develop its workforce, and it needs to be sure this investment is not squandered. In sum, this Subcommittee should require DOE to issue prescriptive regulations to guide subcontracting decisions.

Conclusion

We oppose cuts to DOE's EM program below the $6.6 billion Administration request, as this will place the Department in jeopardy of violating its compliance agreements. Deep cuts could endanger worker safety. We support full funding of the $222 million request from the Office of Environment, Safety & Health, provided that funds are redirected for implementing medical surveillance for former nuclear workers. We support $10 million in funding for the HAZWOPER worker health and safety training program, and the $100 million request to mitigate the economic impacts from the cessation of nuclear weapons production. Thank you for your consideration.

MAR 24 '95 15:15

The Times Leader (Wilkes-Barre, PA) P.3
2/19/94 pgs. 1A, 8A

Beryllium claimants learn of new test

■ *Getting government to pay for workers' screenings will not be easy, says a state senator*

By LISA SCHEID
Times Leader Hazleton Bureau Chief

HAZLETON — Thomas Lazur keeps a list of the names of his former co-workers at the Beryico beryllium processing plant in Ashmore. When one dies he checks that name in his yellow notebook and wonders if he will be next.

He's never been tested for the incurable, sometimes fatal beryllium disease. Tests for the disease cost between $300 and $500.

Lazur worked as a maintenance mechanic for nine years. He was one of more than 100 workers of a former beryllium plant in Ashmore, and their families, who on Friday came to the American Legion in Hazleton to hear health experts and politicians speak about a screening process for the disease.

Beryllium is a lightweight radioactive element that is used to harden other metals. Beryllium dust can cause an incurable, sometimes fatal lung disease. Symptoms are similar to Black Lung disease.

Workers and survivors have tried for years to get compensation and health benefits for diseases associated with the plant. More than 1,200 people worked in the plant, which processed beryl ore for the federal government from 1957 to 1981.

Dr. Milton Rossman, associate professor of medicine for the Hospital of University of Pennsylvania Medical Center, told the former workers a new test that measures special cells associated with the disease in a person's blood stream is available. The tests, Rossman said, are far more accurate than X-rays used to screen workers in Hazleton.

Registered nurse Elizabeth

■ See BERYLLIUM, Page 8A

Beryllium—

(Continued from Page 1A)

Averill, director of nuclear workers projects for the Alice Hamilton College of the Oil, Chemical and Atomic Workers union, said she is trying to arrange for funding of the testing through the Department of Energy.

Averill also told the workers she is trying to meet with representatives of Cabot Corp. to see if they will fund the testing.

State Sen. Raphael Musto D-Pittston Township, who attended the meeting, said getting state or federal support to fund the screening tests for all workers at the former plant would not be easy.

"If the federal government isn't moving, we in the state have an obligation to respond," Musto said.

Lazur, like others who attended the meeting, was both skeptical and hopeful. He said politicians would respond if the issue got more attention. He worried that since the disease was rare, few would care.

"We should get on a talk show like Oprah Winfrey," Lazur said. "We should get Tonya Harding's lawyer."

Averill said the issue is getting attention. Friday, Barbara Newman, a documentary filmmaker, was in town interviewing some former beryllium workers. Newman won an award for a National Public Radio documentary on the workers 20 years ago.

The Beryllium Corp. opened the plant in 1957. That company was sold to Kawecki Berylco Inc. and then to Cabot Corp., which closed the plant in 1981.

Many of the workers who contracted the disease at the former beryllium plant have been unable to receive workman's compensation benefits.

"Certainly I'm worried I might have the disease," Lazur said, as he fingered a gold-colored coin commemorating the opening of the Berylco beryllium processing plant. "Since the last meeting I came to last year, three guys are dead."

TIMES LEADER/DAN SIMON

A retired beryllium plant worker questions Dr. Milton Rossman, associate professor of medicine for the Hospital of University of Pennsylvania Medical Center, during a meeting Friday in Hazleton with health experts and politicians about a screening process for beryllium disease

TUESDAY, MARCH 28, 1995.

URANIUM MILL TAILINGS CLEANUP

WITNESS

PATRICK MORGAN, GENERAL COUNSEL, UMETCO

Mr. MYERS. Mr. Patrick Morgan, General Counsel for UMETCO. Good to have you back. Your statement will be in the record.

Mr. MORGAN. I plan to give you only a few brief highlights from that statement because I know you have had a long day.

This is the third appearance by a representative of UMETCO before this subcommittee. As on the previous two occasions, I am here in support of the Clinton administration's request of $288,807,000 for the decommissioning and decontamination fund established under Title XI of the National Energy Policy Act of 1992.

The D&D fund was established by Congress for cleanup of the Federal Government's three civilian uranium enrichment facilities located at Oak Ridge, Tennessee, Paducah, Kentucky, and Portsmouth, Ohio, and also to reimburse uranium and thorium mill tailings site licensees for the costs of reclamation relating to the Manhattan project and purchases of uranium by the AEC from these companies for the period 1947 to 1970; $42 million of that D&D fund request is earmarked for this mill tailings cleanup.

UMETCO owns 2 of the 13 uranium sites which are being reclaimed and have been reclaimed for a number of years at Uravan, Colorado, and Gas Hills, Wyoming. The one thorium site is located at west Chicago, Illinois. UMETCO was actively involved in the Manhattan project and sale of uranium to the AEC and a substantial portion of the tailings being reclaimed at our two sites were generated in the course of those activities.

Our reclamation costs to date exceed $80 million and will ultimately exceed $100 million before we are finished. The mill tailings cleanup related to national security purchases has had the broad support of uranium mining companies, organized labor, environmental groups, the National Taxpayers Union, western and national governors associations, and Congress' own General Accounting Office. We much appreciate the committee's, subcommittee's support in fiscal year 1994 and 1995 when it proposed $40.6 and $41.7 million for this cleanup and request your continued support in fiscal year 1996. Thank you very much.

Mr. MYERS. Thank you, Mr. Morgan. Thank you.

[The statement of Mr. Sealy follows:]

Statement
of
Curtis O. Sealy
General Manager
Umetco Minerals Corporation
Concerning
FY '96 Appropriations for Energy & Water Development
Before the
Subcommittee on Energy & Water Development
Committee on Appropriations
U.S. House of Representatives
March 28, 1995

Mr. Chairman and distinguished Members of the Appropriations Committee's Subcommittee on Energy & Water Development, my name is Curt Sealy. I am General Manager of Umetco Minerals Corporation. I am here today to present testimony in support of the Clinton Administration request of $288,807,000 for the Decommissioning and Decontamination ("D&D") fund established under Title XI of the National Energy Policy Act of 1992. (P.L. 102-486). The D&D fund was established by Congress for the clean-up of the Federal government's three civilian uranium enrichment plants which are located at Oak Ridge, Tennessee, Paducah, Kentucky and Portsmouth, Ohio, and to reimburse uranium mill tailings site licensees for the costs of reclamation relating to the Manhattan Project (1942-45) and national security purchases of uranium from 1947 to 1970.

This year marks the 50th anniversary of our nation's entry into the Atomic age which brought World War II to an end. Umetco played an important role in the Manhattan Engineering District project and later supplied some 50 million pounds to the old Atomic Energy Commission ("AEC") for national security. The uranium was produced under contracts which contained no provision for mill tailings reclamation because there were no environmental clean-up laws at that time. It was not until 1978 that the Uranium Mill Tailings Radiation Control Act became law. So, in a sense, we and others, got stuck with the clean-up tab notwithstanding the fact that the entire nation benefited from our activities.

In a report titled, "Cleaning Up Uranium Mill Tailings: Is Federal Assistance Necessary?" Congress' own General Accounting Office ("GAO") concluded that: "In order to assure that the uranium mill tailings are controlled in a safe and environmentally sound manner, we recommend that the Congress provide assistance to the active mill owners to share in the cost of cleaning up the portion of the mill tailings that were generated under Federal contracts. These are the tailings for which the Federal Government has a strong moral responsibility." (Emphasis supplied).

Of the Clinton Administration request of $288,807,000 for the D&D Fund for FY'96, $42,000,000 would be allocated for reimbursement of companies, like Umetco, for the mill tailings clean-up. For FY'95, this subcommittee and Congress appropriated $41,700,000 and $40,600,000 was appropriated for FY'94.

In Title XI of the National Energy Policy Act, Congress authorized appropriation of $480,000,000 annually, indexed to inflation, for 15 years to go into the D&D fund. Money would come from an annual $330,000,000 appropriation from the U.S. Treasury and $150,000,000 per year "Special Assessment" on nuclear utilities based on past utilization of the civilian uranium enrichment facilities. I would like to point out that the staff of the House Energy & Power subcommittee estimated during enactment of the uranium provisions of the National Energy Policy Act that the new government-owned uranium enrichment corporation would contribute in excess of $330,000,000 per year to the U.S. Treasury. This more than off-sets the government's contribution to the D&D fund.

In Title X of the National Energy Policy Act, Congress authorized an appropriation of $310,000,000 to reimburse site licensees for that portion of the clean-up of 13 uranium mill tailings sites located in the state of Colorado, Wyoming, Utah, New Mexico, Washington and South Dakota and one thorium site in Illinois related to the sale of uranium to the AEC.. Title X was unanimously adopted by the House and Senate committees involved in the energy legislation. Funding for the mill tailings clean-up has been supported by both the Bush and Clinton administrations. The mill tailings clean-up has been supported by uranium mining companies, organized labor, environmental groups and the National Taxpayers Union.

To date, Umetco has spent in excess of $80,000,000 at our Uravan, Colorado, and Gas Hills, Wyoming, reclamation sites. When we are finished the total costs will exceed $100,000,000. Over 55%, or 5.7 million tons, of the 10.2 million tons of mill tailings at Uravan, Colorado, relate to the Manhattan Project and national security purchases. The Gas Hills, Wyoming, site has 11.2 million tons of tailings of which 2.1 million tons, or nearly 20%, relate to the Manhattan Project and national security purchases.

Mr. Chairman, Umetco Minerals Corporation was a pioneer in the uranium/vanadium mining industry in the United States. We began mining uranium/vanadium bearing ores on the Colorado Plateau in 1929. We discarded the uranium component of the ores into the mill tailings piles because it had no significant value until the Manhattan Project was undertaken. Vanadium, by the way, is used as a hardening agent in steel related products.

In 1942, when the Manhattan Engineering District contracted with us for uranium production from our Uravan facility, we reprocessed the uranium-bearing mill tailings from previous production of vanadium, which combined with continuing mine production, supplied uranium to the U.S. Government. After World War II, we continued to produce uranium for the AEC weapons program.

We began clean-up at Uravan in 1980 and Gas Hills in 1982. This was shortly after UMTRCA became law which imposed very costly clean-up standards on the uranium industry. As mentioned, when we are finished the total clean-up cost will exceed $100,000,000.

In summary, this subcommittee has supported an appropriation of reimbursement clean-up in FY'95. The uranium provisions (IX, X and XI) in the National Energy Policy Act provided a revenue stream for the D&D fund and the legislation was supported by a broad-based coalition consisting of the mining companies, organized labor, environmental groups and the National Taxpayers Union. We hope the subcommittee will support the Department of Energy request of $288,907,000 for the D&D fund of which $42,000,000 would go for continuing uranium mill tailings clean-up reimbursement.

Thank you.

TUESDAY, MARCH 28, 1995.

NUCLEAR WASTE PROGRAM

WITNESS

KRIS SANDA, COMMISSIONER OF MINNESOTA DEPARTMENT OF PUBLIC SERVICE

Mr. MYERS. Ms. Kris Sanda, Commissioner of Minnesota Department of Public Service, representing today the Nuclear Waste Strategy Coalition.

Ms. Sanda, we are pleased to have you. Your prepared statement will be placed in the record and you may proceed for the next five minutes as you would like.

Ms. SANDA. Thank you, Mr. Chairman and members of the committee and staff. I would like to thank you for allowing me to come here today. We have had seven inches of snow in Minnesota and it is a breath of fresh air.

Mr. MYERS. You should thank us for inviting you then.

Ms. SANDA. It is a breath of fresh air to be here with flowers. I am here as a regulator, Mr. Chairman, and I don't have any fancy chips to hold up and say this is what we have produced. I am here as a ratepayer regulator with fiduciary responsibilities not only for Minnesota where I am the Commissioner of the Minnesota Department of Public Service, but I am also here as a member of NARUC. Principally, I am here as the Chairman of the Nuclear Waste Strategy Coalition.

Now, who are we and what do we want at an Appropriations Committee hearing? If you can believe it, ratepayers of the United States, more than 40 States for 13 years, have paid $11 billion counting interest into the nuclear waste fund. As I looked at the charts, I noticed that Indiana, interesting State——

Mr. MYERS. We are paying.

Ms. SANDA [continuing]. Has paid $269.4 million. And I noticed that Alabama, an interesting State, has paid $386.3 million. And my State of Minnesota, $239.1 million.

But the Nuclear Waste Strategy Coalition is interested principally in not only thanking you, Mr. Chairman, as the hard working member and Chairman of this subcommittee, but also your colleagues and their leadership in the past on responding to the civilian nuclear waste program problems.

Now, I am here to support continued funding for the civilian nuclear waste program. But I am also here to complain and to complain loudly about the fact that it is time for Congress and the DOE to deliver on the contracts that DOE has signed with civilian utilities throughout America to take our spent fuel.

In Minnesota, our northern State's power plant has had quite a problem as well as me as a regulatory in the Public Utilities Commission and the Minnesota legislature. We have had probably the most contentious problem we have ever had in the history of our legislature trying to figure out what in the world to do with dry cast storage for spent nuclear fuel. You see, the pools of water within the nuclear reactors are running out of space and it is becoming increasingly contentious and divisive to seek legislative approval to have dry cast storage.

Now, why is this a problem for regulators? Regulators are probably facing the problem of how to pass these costs on to consumers.

What we do, Mr. Chairman, as a regulator we pass these costs on to consumers through what is called the rate base. We allow the utilities as they come in for their rate cases to plead their case. They need X million to do this and they need X million to do that. And then we decide what parts can be passed on to the consumers. We have been passing on the cost of the nuclear waste fund, the contract between the Federal Government and the private utilities, for 13 and some years. As a regulator in Minnesota, I am about to say, no, turn off the spigot because the nuclear waste fund has not delivered the goods from the Department of Energy as promised in the contract.

Specifically, by 1998, the Department of Energy appears to be totally unlikely to be able to take interim storage of spent nuclear fuel. It also appears that the Department of Energy is going to be totally unable to deliver on Yucca Mountain, on a national underground geologic repository, in time to help Minnesota and some other States like us. Perhaps in time they will be able to develop a license and build Yucca Mountain, but the way we look at it right now, ratepayers throughout the United States have paid in $11 billion, we have no interim storage, we have no long-term storage, yet America is accepting spent nuclear fuel from foreign reactors at Savannah River, and the Department of Energy tells us, those of us who have already paid into the nuclear waste fund, that there is no place to put the waste.

I also suspect that the Clinton administration has proposed to pay for this mandatory spending program with the sale of assets from the United States Enrichment Corporation, otherwise known as USEC and the extension of the expiring Superfund corporate tax.

It is our belief to fund the waste program in this manner would require specific legislation, legislation that appears, Mr. Chairman, unlikely at this time. If it does not become a mandatory spending program in the manner the Clinton administration proposes, the nuclear waste program will have to be funded again as a discretionary spending program, but the Clinton administration has not budgeted any discretionary funds for the waste program. Therefore, in our view, the waste program could receive zero dollars in 1996. This could result in a complete breakdown of our Nation's civilian nuclear waste program. The Appropriations Committee cannot let this happen. And I know through your leadership, Mr. Chairman, and that of Mr. Bevill, that will not occur.

On behalf of the Nuclear Waste Strategy Coalition, I would like to thank you for inviting me to Washington and to escape seven inches of snow. Thank you.

Mr. MYERS. Well, thank you for your testimony.

[The statement of Ms. Sanda follows:]

ABSTRACT TESTIMONY OF

KRIS SANDA
COMMISSIONER, MINNESOTA DEPARTMENT OF PUBLIC SERVICE
AND
FOUNDING MEMBER, NUCLEAR WASTE STRATEGY COALITION

PRESENTED TO THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
APPROPRIATIONS COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

MARCH 28, 1995

"The Nuclear Waste Program: Funded Mandate and Our Nuclear Contract With America"

The failure to provide adequate funding to ensure the timely, safe, and cost-effective disposal of nuclear waste threatens both the environment and the nuclear energy industry which presently produces over 20 percent of our nation's electric energy. Ensuring funding continuity for the civilian radioactive waste program is crucial to avoid creating insurmountable costs in the future. Our nation's energy and economic stability could be jeopardized if adequate funding is not provided in FY 1996.

The Clinton Administration's FY1996 budget request for the civilian spent fuel disposal program jeopardizes program continuity. It relies on the success of special legislation that would use the sale of assets from the U.S. Nuclear Waste Corporation and extension of the Superfund corporate tax to change the program from a discretionary spending program to a mandatory spending program. Since passage of that legislation appears unlikely at this time, and no funding alternative has been provided by the Administration, there is a very real possibility that the Administration's miscalculation could result in the complete breakdown of our nation's civilian nuclear waste program. The Appropriations Committee cannot let this happen. Adequate funding must be provided in FY1996.

The Nuclear Waste Strategy Coalition is a public-private partnership of state regulators, utility executives, and Attorneys General in 13 states. The Coalition believes that after 13 years and $11 billion in ratepayer fees, it is time for the Federal government to fulfill its promise to dispose of nuclear waste. To accomplish this, it is absolutely vital that there be no break in the continuity of funding for the civilian radioactive waste program. The Coalition also advocates comprehensive reform of the program and supports H.R. 1020 as the basis for reform legislation.

TESTIMONY OF

KRIS SANDA
COMMISSIONER, MINNESOTA DEPARTMENT OF PUBLIC SERVICE , AND
FOUNDING MEMBER, NUCLEAR WASTE STRATEGY COALITION

PRESENTED TO THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
APPROPRIATIONS COMMITTEE
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MARCH 28, 1995

"The Nuclear Waste Program: Funded Mandate and Our Nuclear Contract With America"

INTRODUCTION

Chairman Myers, members of the Subcommittee, I appreciate this opportunity to testify before you on a problem that has reached crisis proportions in this country -- the storage and disposal of nuclear waste. Spent nuclear fuel currently sits in storage at 74 plants in 33 sites around the country. The failure to provide adequate funding to ensure the timely, safe, and cost-effective disposal of this waste threatens both the environment and the nuclear energy industry -- an industry which currently produces over 20 percent of the nation's electric energy. The consumers this industry serves ultimately will bear the brunt of this governmental failure. Thus, funding for the centralized interim storage and the permanent disposal of nuclear waste has become essential to the energy and economic security of the United States.

The Clinton Administration's budget request for the spent fuel disposal program relies on special legislation regarding the sale of assets from the U.S. Enrichment Corporation (USEC), and the extension of the expiring Superfund corporate tax. Even though U.S. ratepayers have paid more than $11 billion into the Department of Energy's Nuclear Waste Fund, the Clinton Administration has proposed a high risk budget strategy that could provide zero dollars for the storage and disposal of spent nuclear fuel in FY 1996. I know that is not the Administration's intention, but that is a very real probability.

I want to strongly emphasize to this Subcommittee how important this year's funding is. I firmly believe that a lack of appropriate funding for nuclear waste disposal today could produce insurmountable costs in the future. This nations' energy and economic stability could be jeopardized if adequate funding is not provided in FY 1996.

ADMINISTRATIONS' FY 1996 BUDGET REQUEST

The Civilian Radioactive Waste Management Program (Waste Program) is part of DOE's discretionary spending program. Like all discretionary spending programs, it is subject to statutory "spending-caps." The President's Budget Request for FY 1996 would convert the Waste Program into a mandatory spending program. However, President Clinton has proposed to pay for this mandatory spending program with the sale of assets from the U.S. Enrichment Corporation and the extension of the expiring Superfund corporate tax. To fund the Waste Program in this manner would require specific legislation -- legislation that appears unlikely at this time.

Thus, if the Waste Program does not become a mandatory spending program in the manner the Administration proposes, the Waste Program will have to be funded again as a discretionary spending program. But in proposing his FY 1996 budget, the Administration (wrongly assuming that Congress would make the Waste Program a mandatory program funded by the sale of the USEC) has already allocated all of the discretionary funds to other DOE programs. Therefore, under the present budget request, the Waste Program could receive zero dollars in 1996. As alarming as it sounds, there is a very real possibility that the Administration's miscalculation could result in the complete breakdown of our nation's civilian nuclear waste program. The Appropriations Committee cannot let this happen.

ROLE OF THE APPROPRIATIONS COMMITTEE

I testify before you today to help ensure that such a travesty does not occur. Although the Waste Program is clearly broken and needs to be fixed legislatively, our country cannot afford to let our nuclear waste program go unfunded. For Minnesota consumers, the Waste Program is the single most important program within the entire Department of Energy. And shortly, unless we take immediate and forceful action, nuclear waste could soon become one of the greatest economic threats to the entire country.

Congress cannot rely on the sale of U.S. Enrichment Corporation assets to fund the nuclear waste program as the Administration has. This Congress, in particular this subcommittee, must ensure that funds are specifically appropriated to fund DOE's FY 1996 civilian nuclear waste program. Put frankly, to do otherwise would imperil our energy security, our economic well-being and ultimately threaten our environment.

CONSUMER OUTRAGE

Unlike virtually every other federal program, the civilian nuclear waste storage and disposal program is paid for solely by consumers of nuclear power. Consumer's nationwide have paid over $11 billion into the Nuclear Waste Fund, and continue to contribute over half a billion dollars annually, with the expectation that the federal government will provide a solution to the nuclear waste problem. As we all know, very little -- if any -- progress has been made. No one can argue differently.

Ironically, if the nuclear waste fund was part of a commercial transaction between two private parties, the failure to perform -- especially after accumulating $11 billion in payments -- would constitute egregious behavior and signify a serious breach of contract if not criminal behavior. Let me illustrate with a story. What has happened with the nuclear waste fund is no different than an elderly couple who -- in 1982 -- hired a building contractor to construct a retirement home. In the expectation that the retirement home would be built, the elderly couple faithfully makes timely payments for thirteen years. After the thirteen years of payments, the elderly couple realizes that the only work performed on the house is an often revised blueprint -- and even that it lacks a building permit! Now the contractor is telling this couple that the home will not be completed for another 12 years after the contractually agreed upon completion date, if then. In addition, the original home site may not even be suitable. Clearly, like consumers of nuclear power, the elderly couple in this story have not received the benefit of their contract.

To carry the analogy to its logical ending, the elderly couple will simply die before their retirement home is ever built. Moreover, unlike the analogy above, the inability to confront this problem could threaten the energy security of the United States, and cost consumers billions of dollars in unnecessary costs.

CONSUMER RESPONSE

While the federal government's response to this problem has been characterized by inaction, consumers, states, and utilities have refused to sit by idly while this situation threatens the health, safety, and welfare of the environment and the pocketbooks of our fellow citizens. Together with Michigan and Florida, Minnesota founded the Nuclear Waste Strategy Coalition, a group of state regulators, executives from nuclear utilities, and Attorneys General who work together to move the civilian nuclear waste program forward. Our growing Coalition now has 13 states with an immediate goal of having 20 member states.

The Coalition is following a three-pronged action plan including: holding the federal government accountable for its obligations for nuclear waste disposal by initiating a lawsuit against the Department of Energy; supporting and encouraging development of private initiatives to meet the need for away-from-reactor storage; and by advocating comprehensive legislative reforms.

In total, twenty-six states, and 18 utilities have brought suit against the Department of Energy to ensure that DOE fulfills its legal obligation to address this dilemma. Uncertainty looms, however, as DOE's responsibilities have not yet been clarified by the courts. The issue remains unresolved as the current lawsuit is still pending before the Court of Appeals for the D.C. Circuit.

The Coalition continues to move forward in support of plans to build a private interim storage facility with the Mescalero Apache Tribe in New Mexico. While the federal government has abdicated its responsibilities, state governments, utilities, and consumers have actively sought a resolution to this problem. The federal government, however, beginning with the adequate funding of DOE's FY 1996 nuclear waste program, must share the burden of these responsibilities. Clearly, by relying solely on the uncertain funding through the sale of the Uranium Enrichment

Corporation and extension of the Superfund tax, the Clinton budget request does not fulfill its responsibility.

LEGISLATION

Funding alone, however, will not solve our problems. We need to reform the way in which appropriated moneys are spent. Legislation has been introduced in the House which can be the basis for assuring that ratepayers, consumers, and taxpayers will be protected against government indifference. H.R. 1020, introduced by Congressman Fred Upton of Michigan, seeks to correct the current problem with spent fuel and proposes a long-term, cost-effective and environmentally sound foundation for solving this crisis. I realize my testimony today is an attempt to assure adequate funding for the Waste Program. I also ask, however, that the Members of this subcommittee take an active role in assuring passage of H.R. 1020. Without a long-term strategy, money alone will not solve this problem.

CONCLUSION

We must not risk a break in the funding of the civilian nuclear waste program, and we must pursue comprehensive program reform this year. Otherwise, I can assure you that this nation will be faced with a crisis of immense proportions. The problems of nuclear waste have hardly begun to be resolved. The longer we wait to act, the more expensive -- and ominous -- the future becomes.

Thank you for this opportunity to testify. I would be happy to answer questions you have.

Mr. MYERS. And the committee is very much aware of the problem that you have addressed here today. We share that deep concern. My own State of Indiana, we are paying but we do not even contribute any waste. We don't have a reactor.

Ms. SANDA. But you are benefiting from nuclear power.

Mr. MYERS. Some. Very little. We have lots of coal.

Ms. SANDA. Yes.

Mr. BEVILL. I wish we could put you in charge of the nuclear waste program.

Ms. SANDA. Mr. Chairman, I think I told you this story too, about when Hazel O'Leary and I first came, when she was the Vice President of Northern States Power and we went to Admiral Watkins and said please help us with our problem, and he was very gracious and all of his people said basically wait until the next election.

I waited until the next election and Hazel became the Secretary of Energy. And I thought, aha, my problems are over. Wrong. I went to see her, as nicely as I could, and I said please help us with our problem, and she looked at me and said, Chris, you are a good friend, but please wait until the next election. We have waited, Mr. Chairman. Now we need delivery.

Mr. MYERS. Next year is the next election.

Ms. SANDA. But you are a good man. That is not going to happen. Thank you.

TUESDAY, MARCH 28, 1995.

DOE BUDGET

WITNESS

ANNA AURILIO, STAFF SCIENTIST, U.S. PUBLIC INTEREST RESEARCH GROUP

Mr. MYERS. Anna Aurilio, Staff Scientist, U.S. Public Interest Research Group. Glad to have you before us here. Your prepared statement will be placed in the record and you may proceed for the next five minutes as you like.

Ms. AURILIO. Thank you, Mr. Chairman.

Good afternoon, Mr. Chairman and member of the committee. My name is Anna Aurilio, and I am the Staff Scientist with the U.S. Public Interest Research Group.

As you know, the U.S. PIRG is the national lobbying office for the State public interest research groups. We are nonprofit, nonpartisan. We work on environmental, consumer, and good government issues in over 30 States.

As you know, U.S. PIRG has been working to shift energy priorities away from polluting energy sources and towards clean, affordable energy sources. We have also been working to cut so-called polluter pork programs. These are programs that we believe hurt taxpayers twice, first from their paychecks and second when their environment gets polluted and they suffer health effects or other bad effects. The Department of Energy funds many of these programs that are under the jurisdiction of your subcommittee and particularly the advanced light water reactor program and the tokamak physics experiment.

We work on this because energy use and production is the largest source of pollution. And Americans overwhelmingly favor spending their tax dollars on energy efficiency and renewable energy programs over fossil fuel and nuclear energy programs. In fact, a recent poll by a Republican pollster Dr. Vince Breglio found 73 percent of Americans when asked if DOE programs have to be cut, which would you cut, picked nuclear and fossil fuel programs. We believe that DOE should follow what the American public wants.

We recommend that the subcommittee terminate the following programs: The Light Water Reactor Program, Gas Turbine Modular Helium Reactor, the National Ignition Facility, the Tokamak Physics Experiment, and consider reducing overall funding and restructuring both the nuclear waste program and the overall fusion programs. This would save $525 million in fiscal year 1996.

We also support the renewable energy programs, but I am going to focus my remarks, the rest of my remarks, on just the programs that we believe we should cut because I think you have heard the other side probably today.

First of all, we sympathize with the previous witness, that we don't think that ratepayers have been getting their monies' worth from the nuclear waste fund, and we also believe that the problem of what to do with nuclear waste that has come from our reactors is a very large one. It is one that may never have a satisfactory solution.

We also, since we are a consumer group, are concerned that ratepayers are paying extremely high rates because of problems with nuclear reactors that have already been built—poor operation and maintenance, poor construction, those types of things.

And we think one program that should go is the DOE's nuclear energy program. This technology has failed the marketplace test. Taxpayers have subsidized nuclear energy since it was invented. It has failed and a recent survey of 285 utility executives, less than 10 percent said their utility would ever consider building another reactor. And we don't think the taxpayers should spend their money on this failed technology.

We pick the GT–MHR as one of our targets. We feel this represents a real boondoggle for a couple of reasons. One is that it lacks a secondary containment system to prevent the release of radioactivity in the case of an accident. Now, its supporters will say the design of the reactor is so safe we don't need secondary containment. In fact, if you look at the operating record of the only commercial gas cooled reactor that the company made, which was the Ft. St. Vrain reactor in Colorado. It had a dismal operating record. It operated 14 percent of the time and was finally shut down.

Do we want to trust a future generation of Americans to reactors built by this same company that don't have any secondary containment? I think not. We recommend this program be terminated.

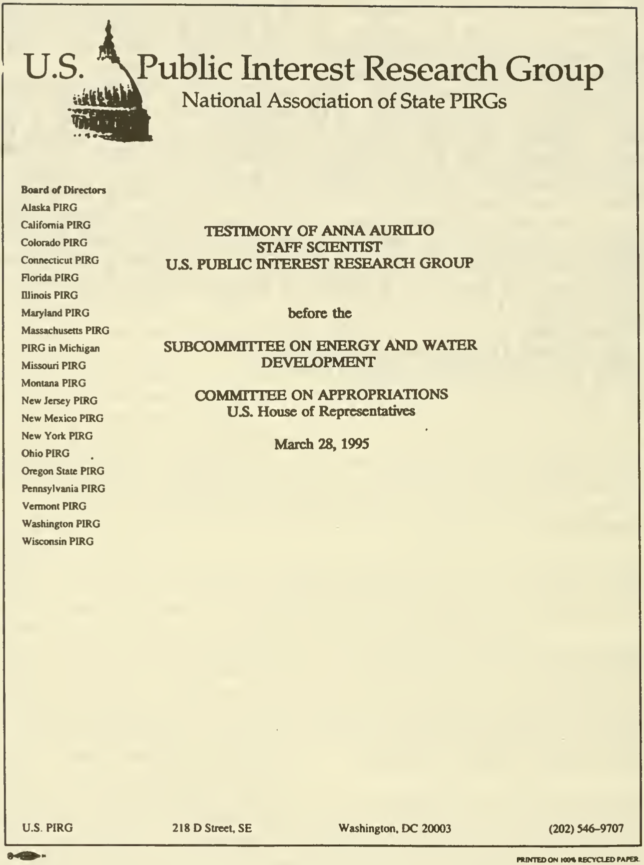
Nuclear technology research and development. This is a program in a time of tight budgets, and as you have said, looking for money everywhere. DOE has actually started a new program this year. It is called nuclear technology research and development. It is funded at $37.3 million. It is to redirect the personnel at Argonne who had been working on the advanced liquid metal reactor program, and we believe at least $13 million of this funding is going to go towards perpetuating ALMR-related technology, which the House voted repeatedly to cut last year and in the last Congress.

Light water reactors. Light water reactors, if I can just finish up with this, because I think this is the most egregious example of corporate welfare we have under this subcommittee, particularly the licensing assistance. We are giving companies like General Electric and Westinghouse companies that have gross sales of billions of dollars a year money to help them with the licensing program. I know of no other industry that receives government funds to help them get a license from another government agency. And certainly when I go to renew my driver's license I don't expect the Federal Government to hand me a check to help me pay off the city of Washington, D.C.

Thank you.

Mr. MYERS. Thank you, Ms. Aurilio.

[The statement of Ms. Aurilio follows:]



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TESTIMONY OF ANNA AURILIO
STAFF SCIENTIST
U.S. PUBLIC INTEREST RESEARCH GROUP

before the

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

COMMITTEE ON APPROPRIATIONS
U.S. House of Representatives

March 28, 1995

U.S. PIRG 218 D Street, SE Washington, DC 20003 (202) 546-9707

PRINTED ON 100% RECYCLED PAPER

Good afternoon, Mr. Chairman and members of the subcommittee. I am Anna Aurilio, Staff Scientist for the U.S. Public Interest Research Group. I am pleased to present our recommendations for the Department of Energy's FY96 budget request for programs under the jurisdiction of the Energy and Water Development Subcommittee.

U.S. PIRG is the national lobbying office of the state Public Interest Research Groups. PIRGs are non-profit, non-partisan and work on environmental, consumer and good government issues in more than 30 states.

As you may know, U.S. PIRG has long worked to shift energy priorities away from polluting energy sources, such as nuclear and fossil fuels, towards clean and affordable energy sources. U.S. PIRG has also been working to cut polluter pork programs. These are programs which hurt taxpayers twice -- first by robbing their paychecks, and second by threatening their health and environment. The Department of Energy funds many such programs, including the advanced light water reactor program and the Tokamak Physics Experiment (TPX).

Energy use and production is the largest source of pollution. Americans overwhelmingly favor spending their tax dollars on energy efficiency and renewable energy sources, yet nuclear energy and fossil fuel energy research and development programs have historically garnered over five times as much federal support as energy efficiency and renewable energy programs. In fact, a national poll conducted in December, 1994 by the Republican pollster Vince Breglio shows that 73% of the American public believes that Congress should cut spending on nuclear energy and oil and coal programs. The same poll shows that continued funding for renewable energy programs such as solar and wind programs and energy efficiency programs has bipartisan support from 66% of Americans.

We believe that DOE energy research and development programs should focus on programs which will lead to a clean, affordable, energy future, and cut those which waste tax dollars and damage the environment. The American public also agrees. We therefore recommend that the subcommittee terminate the following programs: the Light Water Reactor Program, the Gas Turbine Modular Helium Reactor (GT-MHR), the National Ignition Facility (NIF), and the Tokamak Physics Experiment (TPX), and consider reducing overall funding and restructuring the fusion and nuclear waste programs. This would save taxpayers $525 million in FY96. We also recommend that renewable energy programs are funded at the requested level. I will focus my remarks on the programs which we believe should be eliminated or reduced.

POLLUTER PORK PROGRAMS WHICH SHOULD BE ELIMINATED

A. NUCLEAR ENERGY

When nuclear fission reactors were first being developed, supporters bragged that nuclear power would be "too cheap to meter." Decades later, despite enormous taxpayer subsidies, nuclear power has failed the marketplace test. No new nuclear power plant has been ordered and built since 1973, and in a recent survey of 285 utility executives, only ten percent said their utility would ever consider building a new nuclear power plant. We are now burdened with the yet-to-be-solved problem of addressing the highly radioactive, nuclear wastes which result from nuclear fission, and aging reactors present an increasing safety concern. The nuclear energy industry has fed long enough at the federal trough. Nuclear fission is uneconomic, unsafe and generates lethal wastes. Our tax dollars should not fund this failed technology.

1. **Gas-Turbine Modular Helium Reactor (GT-MHR)** - Recommendation: terminate the program (FY96 Savings: at least $11.248 million based on FY95 funding). This program is among the more tenacious polluter pork programs. Although the Reagan, Bush and Clinton administrations have all proposed its termination at various times, the gas-cooled reactor program has somehow received continuous funding since at least 1983. We oppose this reactor program because it is unsafe, uneconomical and will produce radioactive waste.

The GT-MHR lacks a containment structure to prevent release of radioactivity in case of an accident. Proponents, including General Atomics, the major beneficiaries of this polluter pork program, will claim that the design of the reactor is so safe that no such containment is needed. One need look no further than the dismal operating record of General Atomics only full-scale commercial gas-cooled reactor in the U.S. to decide whether to entrust the future safety and health of Americans to such an astounding claim. The Ft. St. Vrain reactor in Colorado was plagued with operating difficulties and operated less than 14% of the time before it was finally shut down in 1989.

The National Academy of Sciences (NAS) has twice rejected the gas-cooled reactor. In 1992, it concluded that "[n]o funds should be allocated for development of HTGR technology." In 1994, the NAS rejected General Atomics claim that the GT-MHR is suitable for disposing of plutonium from weapons. Finally, the GT-MHR, like all nuclear fission reactors would produce highly radioactive, lethal wastes.

2. **Nuclear Technology Research and Development** - Recommendation: terminate activities associated with reprocessing or pyroprocessing spent fuel (FY96 Savings - at least $13 million based on FY95 funding). At a time when both the Clinton Administration and the Congress are focussing on streamlining government and eliminating unnecessary bureaucracy, DOE found $21 million in FY95 and is requesting $37.3 million for FY96 to start a new, unnecessary program. According to DOE, this program is being created to cover the "redirection of valuable intellectual and physical resources at Argonne National Laboratory..." as a result of the shutdown of the nuclear breeder reactor program known as the Advanced Liquid Metal Reactor (ALMR).

U.S. PIRG and other environmental, taxpayer and arms control groups worked hard for the termination of the ALMR for cost, proliferation and environmental reasons. We are extremely concerned that portions of this new "Nuclear Technology Research and Development" program represent nothing more than a continuation of the fuel reprocessing activities supported by the ALMR program. The House consistently voted to terminate the ALMR in the 103rd Congress, an action which will ultimately save taxpayers $3 billion, and help prevent the spread of nuclear weapons. Continued support for the reprocessing, pyroprocessing or electrometallurgical portions of the new Nuclear Technology Research and Development program keeps alive a key ALMR technology which should be terminated.

3. **Light Water Reactor** - Recommendation: Eliminate the program (FY96 Savings $49.74 million) This program represents one of the most blatant examples of corporate welfare. Approximately half of the FY96 would fund design assistance for advanced light water reactors being developed by General Electric, Westinghouse and Asea Brown Boveri. There is no market in the U.S for such reactors, and one has to question why Westinghouse Electric with reported sales of $8.87 billion in 1993 and General Electric with reported sales of $60.6 billion that year need taxpayer funding to conduct research activities.

The other half of the FY96 request is to assist the industry in preparing design certification and license renewal from the Nuclear Regulatory Commission. This is a particularly outrageous use of taxpayer funds since we are unaware of any other industry which receives funding from one branch of the government to pay the fees of another branch.

4. **Nuclear Waste** - Recommendation: Reduce FY96 funding 50%, appoint an independent, blue ribbon commission to re-evaluate radioactive waste policies (FY96 Savings $325 million) This program funds site characterization of the Yucca Mountain, Nevada site to see if it is suitable for a permanent repository for high-level nuclear waste.

This program has been replete with cost and schedule overruns. The General Accounting Office found that only 22 percent of the Yucca Mountain budget has been spent on actual site investigation. What has been found so far does not instill confidence that highly radioactive, lethal wastes will remain isolated for over 10,000 years. The area is riddled with earthquake faults and was recently jolted by a magnitude 5.6 earthquake. Serious questions have also recently been raised about the possibility of an explosion occurring at the repository. Despite the concerns, the budget for this program is on a steep upward trajectory. FY94 funding for this program was $380 million. Last year, it received a whopping 37% increase to $522 million. DOE proposes FY96 funding at $630 million, another 21% increase. By FY98, DOE proposes a budget more than double that of FY94.

Unfortunately, nuclear waste is here to stay. The nearly 30,000 metric tons of highly radioactive spent fuel from commercial reactors will remain dangerous to living things for hundreds of thousands of years. Throwing more money at this problem will not make it go away. Both the General Accounting Office and the Nuclear Waste Technical Review Board have recommended an independent review of our nation's radioactive waste policies. 14 Senators, 26 member of Congress, and 173 local and national environmental, consumer, religious, and other organizations have called for the formation of an independent commission.

B. FUSION ENERGY

While it may be possible to generate fusion energy in an environmentally benign manner, DOE's current civilian fusion energy program focuses on a technology, known as "tokamak" which will generate large quantities of radioactive waste. DOE's defense-related fusion program raises proliferation concerns and may not be suitable for civilian energy production.

Enormous scientific and engineering problems associated with achieving and sustaining the conditions necessary for fusion energy are far from being solved. Over the last 40 years, U.S. taxpayers have paid more than $9 billion for research on fusion energy, yet none of the research efforts has achieved "break-even", the point at which the fusion reaction generates the same amount of energy as is put in. Of course, to produce commercial power, a fusion reactor has to generate more energy than is put in, and there is no guarantee that this will happen in our lifetimes. Yet in these tight budget times, DOE is planning to begin design and construction work on not one but two new fusion reactors here in the U.S., neither of which will generate clean, affordable energy.

1. **Tokamak Physics Experiment (TPX)** - Recommendation: Eliminate program (FY96 Savings $62 million). The TPX, a new fusion reactor proposed for construction at Princeton University, should not be built. This tokamak technology generates radioactive waste and is uneconomic. According to Dr. Robert Hirsch of the Electric Power Research Institute (EPRI) these reactors would produce more radioactive waste than an Advanced Light Water Reactor. Dr. John Holdren of the University of California at Berkeley estimates that total lifetime radioactive waste volumes from fusion reactors will be "..about the same as those from advanced (breeder) fission reactors.." but notes that the fusion reactor wastes will by "...from 300 to 300,000 times less hazardous than fission-reactor wastes (the range depending on fusion-reactor materials choice and other design characteristics)." Of course, fission reactor wastes are hazardous for at least 240,000 years.

While tokamak technology may be somewhat less hazardous than fission reactor wastes, the price tag for tokamaks may be lethal. By many estimates, tokamak fusion energy will be more expensive than nuclear fission, which has already failed the marketplace test! A recent study by researchers at Los Alamos National Laboratories states that tokamak reactors "would not be competitive with respect to present projections for Advanced Light Water (fission) Reactors." Scientists from Lawrence Livermore National Laboratories have reported that "... there is a growing realization that our present, conventional approaches will not lead to attractive commercial reactor products able to compete in the energy marketplace of the 21st century.." Dr. Robert Hirsch of the Electric Power Research Institute (EPRI) testified that the "best DT [deuterium-tritium] tokamak designs appear to be less attractive than the Advanced Light Water fission reactor..". Finally, a 1991 Department of Energy internal policy study of 23 future energy supplies ranked fusion 22nd on the basis of feasibility, market and technical risk, and environmental and cost issues.

4. **National Ignition Facility** - Recommendation: Eliminate program (FY96 Savings - $63.78 million). According to DOE's FY96 budget request, the total cost of the proposed National Ignition Facility will be $3.4 billion. This project is primarily a "make-work" project for weapons scientists, but proponents also claim that this laser fusion facility will help develop civilian fusion energy technologies. U.S. PIRG believes that this technology is very unlikely to lead to a civilian energy source, and the use of radioactive fuels raises environmental concerns.

Mr. MYERS. The committee will stand in recess. We have a vote in the full committee at this moment so we will be probably about five minutes. I apologize to the last witness but we have to go vote with the committee.

[Brief recess.]

TUESDAY, MARCH 28, 1995.

BIOMASS PROGRAM

WITNESS

ROBERT MAURO, UTILITY BIOMASS ENERGY COMMERCIALIZATION ASSOCIATION

Mr. MYERS. Mr. Mauro, if you will step up.

The committee will come to order. We apologize to our witness. We had a vote down there and it didn't take long if you know what you are doing. We had to report to go to conference on the rescission bill. So I apologize.

Mr. MAURO. Yes, sir.

Mr. MYERS. Mr. Robert Mauro, the Utility Biomass Energy Commercialization Association. Your prepared statement will be in the record and you can proceed as you like for five minutes.

Mr. MAURO. Thank you, Mr. Chairman. I understand, I realize that happens sometimes when you are the caboose. I want to highlight a few of the comments.

Mr. MYERS. We saved the best for last, I must say.

Mr. MAURO. Well, thank you, I hope that is true.

As I indicated in my testimony, I am a consultant to the Utility Biomass Energy Commercialization Association, UBECA, which is an association of power producers and others whose mission is to encourage the development of economical sustainable biomass resources and economically competitive technologies for the benefit of electric utilities power producers and their customers.

The members of UBECA strongly support DOE's fiscal year 1996 budget request for just over $33 million for biomass power. Federal funding for this program would support advanced conversion technologies, feedstock research, and economic analysis, and infrastructure development.

The essence of my testimony is that continued funding of biomass power will allow unused farmland that is currently subsidized by the Department of Agriculture to be put into production growing trees and grasses that will become fuel to create electricity, increase farm incomes, and introduce tens of thousands of jobs into rural America.

I would like to illustrate a few of those points as I go through these highlights.

Biomass encompasses all plants and organic matter. Taken all together, the suitable growing conditions for energy crops cover the entire East, Midwest, and northwestern regions of the United States.

Due to this array of fuels, biomass power has the largest potential base load capacity of any renewable energy source in the country, and for that matter the world. There is currently 7,500 megawatts of utility and independent power producer biomass fueled electrical capacity in the United States. Enough to provide electricity to about 6 million people.

In addition, the pulp and paper industry generates an equivalent amount of electricity for its own use. The environmental benefits of energy crops include improvements in air, soil, and water quality, and wildlife habitat diversity. The Electric Power Research Institute and the Department of Energy estimate that 100 million acres of farmland will be available for energy crops in the 21st Century and that between 50 and 100,000 megawatts of biomass power could be developed.

The Department of Energy also estimates that by 2010 biomass could support more than 280,000 jobs and generate $6.2 billion in personal and corporate income. The State of Maine currently generates 23 percent of its base load power by converting wood and wood waste to electricity replacing imported oil. Hawaii, once almost completely dependent on imported oil, now generates 20 percent of its electricity from biomass.

Coproduction is the use of a crop to make electricity and other value-added products such as ethanol. In Minnesota, the Northern States Power Company can, under a State imposed mandate to produce biomass power, is studying alfalfa as a feedstock. The stems are burned for electricity and the leaves are used for high-protein feed for livestock.

Fuel cells using gasified biomass are being tested under the biomass program. The power sources could be owned by individual farms and used to supply the energy requirements for the farm and still sell some power to the utility generating revenue.

Biomass energy accounts for 14 percent of the world's energy. In 1992, an OTA study estimated that 35 percent of the emerging Nation's energy was provided by biomass, mostly inefficiently. This presents business opportunities for U.S. industry and the world market because of our leadership in biomass technologies.

Energy and agricultural policy must be closely allied in order to develop working energy crop systems. The Department of Agriculture is allowing the harvesting of energy crops on conservation reserve program land for the purpose of biomass RFP recently issued by DOE. The millions of acres enrolled in CRP is erodible or otherwise marginal land that in the interest of the environment, the Department of Agriculture pays $1.8 billion a year to farmers not to harvest.

If there is an environmentally acceptable way to put CRP land into production, which we strongly believe there is, the Department of Agriculture could allow responsible harvesting of energy crops. Research dollars from this effort today would develop an energy crop alternative to CRP payments to farmers.

We request the Congress do what it can to guide Federal agencies to work together to reduce the Federal CRP subsidy and buy in bio power. This could only occur without a revenue loss to farmers if DOE's biomass power program is adequately funded to demonstrate the technologies, feedstocks, and infrastructure required to assure success.

Thank you, Mr. Chairman.

Mr. MYERS. Well, thank you, Mr. Mauro.

[The statement of Mr. Mauro follows:]

Statement of

Robert Mauro

Consultant

Utility Biomass Energy Commercialization Association

Subcommittee on Energy and Water Development

Committee on Appropriations

U.S. House of Representatives

Washington, DC

March 28, 1995

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UBECA, the Utility Biomass Energy Commercialization Association, is an association of power producers and others whose mission is to encourage the development of economical sustainable biomass resources and economically competitive technologies for the benefit of electric utilities, power producers, their customers, and society. UBECA has twenty utility Members which each seek to make biomass power a part of their energy mix, and five Associate Members representing members of industry which recognize the great potential offered by biomass energy. The members of UBECA strongly support the Department of Energy's budget request for biomass programs in 1996, specifically $33.22 million for biomass power programs, $38 million for transportation fuels, $5 million for the industrial sector, and $4 million for the Regional Biomass Energy Programs.

The funding for biomass programs at the Department of Energy, in partnership with funds from the industry, will allow the pursuit of several crucial avenues toward the commercialization of biomass energy:

- **Advanced Conversion Technologies**
  There are several advanced conversion technologies which are ready for testing in demonstration projects. Only through commercial demonstrations may the cost and risk be brought down so that we may produce cleaner, more efficient and, therefore, far more economical conversion to electricity.

- **Feedstock Research**
  Viable feedstocks vary greatly from region to region, making necessary site-specific research to provide the most practical and productive feedstocks for each region. Energy crops and fast-growing trees are currently being developed which are progressively increased in energy content and growth rate — making farm revenues rise and the cost of conversion to electricity fall.

- **Economic Analysis & Infrastructure Development**
  Economic and impact analyses and implementation guidelines are crucial steps toward working biomass supply infrastructures, without which the industry cannot expand into the rural agricultural areas where it has the most potential and is most needed.

Biomass encompasses all plant and organic matter. When used as fuel to produce electricity, biomass is called "feedstock." Feedstocks include forestry wastes such as wood, bark and sawdust, agricultural crop residues, the biomass portion of solid municipal waste, recovered methane from landfills, some animal waste, and fast-growing trees and grasses known as energy crops. As feedstock research at the Oak Ridge National Laboratory continues, the variety and productivity of suitable energy crops increases constantly, resulting in a range of productive energy crops from willows and poplars to eucalyptus and switchgrass. Taken all together, the suitable growing conditions for energy crops cover the entire East, Midwest, and Northwest regions of the U.S. The Department of Energy and the Electric Power Research Institute estimate that, by the year 2010, genetic engineering should increase yields from tree crops by more than 50%, resulting in production of millions of tons of sustainable, renewable energy crops for low-cost boiler fuels.

Because the Department of Energy has made a modest investment in biomass energy for the last ten years, wood and agricultural waste that ordinarily goes into landfills can now be used as fuel to create electricity. Unused farmland that is currently subsidized by the Department of Agriculture can be put into production growing trees and grasses that will become fuel to create electricity, increase farm incomes, and introduce tens of thousands of jobs into rural America.

Biomass research has progressed to a critical point. Advanced gasification technologies that are progressively more efficient are closing the gap to economic competitiveness. Biorefineries can eventually produce high-value chemicals and fuel for utility boilers. Cofiring power plants which burn biomass with coal are already in commercial operation and are ecnomical at low biomass concentrations. In order to expand the fuel supply of biomass-fired plants to the millions of acres of available cropland, regional markets and infrastructures must be put into place. Biomass power plants must have a reliable fuel source for their entire lifetime — twenty to thirty years — and farmers cannot plant a crop without being assured that they will be paid a profitable price. Millions of tons of fuel must be efficiently collected and delivered to biomass power plants. These complex infrastructures represent jobs and rural revitalization. Without some near-term federal support for systems establishment, however, they represent a risk that few farms, manufacturers, or power producers are capable of shouldering on their own.

Due to the great array of biomass fuels, biomass power has the largest potential baseload capacity of any renewable energy in the country and the world. There is currently 7,500 megawatts of utility and independent power producer-owned electrical generation in the U.S. — consuming 47 million tons of biomass annually, providing enough electricity to serve six million people. An equal or greater amount of biomass electricity is generated by the pulp and paper industry to run its mills and plants. The U.S. Energy Information Administration projects more than a doubling of electricity generated from biomass wastes between now and the year 2010.[1] The Union of Concerned Scientists estimates that nearly 30% of the current electricity demand in the Midwest could potentially be met through the use of renewable biomass energy crops and advanced conversion technologies, at costs competitive with new fossil-powered systems.[2] Finally, the Department of Energy estimates that electricity from biomass could more than quintuple in the next 20 years.[3]

UBECA's mission is to encourage the development of economical sustainable biomass resources and economically competitive technologies for the benefit of electric utilities, power producers, their customers, and society.

There are two near-term biomass opportunities that make economic and environmental sense for utilities — cofiring and repowering. Cofiring, or burning biomass with coal, can be done in existing boilers and reduces greenhouse gas emissions. Retrofitting existing power plants to burn biomass instead of fossil fuels is another option, called repowering. Both of these are good ways for utilities to comply with the Clean Air Act. When burned, biomass emits only 2% of the SO_2 of coal, and only a quarter of the NO_x. In addition, biomass power adds no CO_2 to the environment, since all the CO_2 emitted during combustion was first absorbed from the environment while growing, creating a closed-carbon cycle.

Environmental Benefits

The environmental benefits of using biomass for energy are manifold, which is why both the National Audubon Society and the Union of Concerned Scientists not only endorse bioenergy but devote significant resources to educating farmers, power producers, and state and local governments about the potential of biomass energy. The environmental benefits of energy crops include improvements to air, soil, and water quality and to wildlife habitat diversity. Energy crops are extensively rooted so they prevent soil erosion and increase the organic content of the soil, which aids aeration, water retention, and nutrient capacity.

Biomass power has the largest potential baseload capacity of any renewable energy in the country and the world.

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[1] Eric Denzler, "Biomass Commercialization: The Federal Role," the Union of Concerned Scientists Report, May, 1994

[2] *Ibid.*

[3] *Ibid.*

Tree crops such as willows can be planted in wetlands between grazing land or cropland and streams, acting as a buffer zone or a living filter to prevent chemical and waste run-off into water sources. Energy crops require far less pesticide and fertilizer than annual row crops, and the use of wet agricultural wastes and sewage for energy reduces soil and water contamination from organic nitrogen. Finally, energy crops — and trees in particular — encourage much greater habitat diversity than annual row crops. Energy crops are harvested less often than traditional crops, causing less habitat disturbance during nesting and breeding seasons, and can be located to enhance existing habitats by providing buffer zones around them.

Currently unused farmland can produce trees and grasses that will become fuel to create electricity, increase farm incomes, and introduce tens of thousands of jobs into rural America.

These environmental benefits are promising for farmers, who can increase their revenues and improve their soil and water quality, and for the Department of Agriculture, which currently subsidizes land that is deemed unsuitable for traditional row crops, but can be used to produce energy crops.

Economic Benefits

The Electric Power Research Institute and the Department of Energy estimate that 100 million acres of farmland will be available for energy crops in the 21st Century, and that between 50,000 and 100,000 megawatts of electrical capacity could be sustained annually by energy crops generated on currently unused cropland — one sixth of the total current energy consumption in the U.S.[4] To be economical, biomass plants will generally be within 50 miles of the farms that grow their fuel. That means that the money spent to grow, harvest, and transport those crops stays in the community, creating jobs locally. The wood-to-electricity industry requires harvesters, foresters, transporters, local suppliers, fuelwood handlers, and others workers directly involved in harvesting and conversion. The Department of Energy estimates that, by the year 2010, biomass power could support more than 280,000 jobs and generate $6.2 billion dollars in personal and corporate income.[5] In 1992, biomass energy accounted for $467 million in state taxes, and that amount is expected to jump to more than $1.5 billion by 2010.[6] The state of Maine currently generates around 23% of their baseload electricity requirement by converting wood and wood waste to electricity, replacing imported oil. Hawaii, once almost completely dependent on imported petroleum for energy, now generates 10% of its electricity from biomass. According to the Southeastern Regional Biomass Energy Program, activities associated with the use of industrial wood energy resulted in the production of more than 71,000 jobs and $1 billion in personal income in the southeast region of the U.S. in 1987.[7]

Energy crops could be used to produce one sixth of the total current energy consumption in the U.S.

The economic benefits of using waste products as fuel are significant. Using forestry and agricultural residues for energy represents an attractive, non-regulatory approach to solving an expensive disposal problem, and offers potential joint-ventures between utilities and the pulp and paper industry.

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[4] News Release by the Electric Power Research Institute. Palo Alto, CA, July 20, 1994.

[5] Meridian Corporation and Antares Group, Inc., *Biologue*, September/November, 1992, 12-18

[6] *Ibid.*

[7] Eric Denzler, *op. cit.*

Residues from agriculture — such as corn hulls and husks, wheat chaff, and other crop wastes — may be used to create not only electricity but ethanol and other chemicals. Using forestry residues and solid municipal waste for energy not only provides a low-cost fuel but saves money by increasing the life of overburdened landfills. The Tennessee Valley Authority region alone (comprising Tennessee, northern Alabama and northern Georgia) generates between two and four million tons of wood waste a year — equivalent to a pile three-and-a-half miles high — that is now put into landfills or illegally dumped.

Advanced Technologies

Coproduction is the use of a crop to make both electricity and another, value-added product, such as ethanol. Coproduction is a way to generate value-added products from crops to increase farm revenue, decrease the cost of electricity production, and to get everything from the pig but the squeal.

In Minnesota, the Northern States Power Company is acting under a state-imposed mandate that requires it to establish 50 megawatts of biomass power by the year 1997, and 75 more by the year 2002. The utility is currently conducting a coproduction study using alfalfa as a feedstock. The alfalfa stems are burned for electricity, and the leaves are used as a high-protein feed for livestock.

Fuel cells are being tested which could be owned by single farms and provide enough energy to serve the farm and leave some power left over to sell.

Multiuse crops such as these give farmers flexibility. Research conducted at the National Renewable Energy Laboratory has made coproduction possible for many crops, including trees and grasses in addition to soybeans, oilseeds, and corn. Ethanol, biocrude oil, and many chemical products can be coproduced with electricity to create value-added products for farmers. Whole-tree energy is a technology in which entire trees are fed into boilers, eliminating the costly step of wood chipping. Biomass gasification and pyrolysis are technologies whereby biomass is turned into gas by heat and pressure which then may be burned in gas turbines, which is twice as efficient as simply burning raw biomass. In combined-cycle turbines, heat is recaptured and run through a steam turbine to maximize efficiency. Fuel cells are being tested which could be owned by single farms and provide enough energy to serve the farm and leave some power left over to sell. Fuel cells create electricity without combustion, using instead an electrochemical process in which hydrogen from biomass reacts with oxygen to create water and electricity. Fuel cells are extremely efficient and completely clean. Fuel cells and anaerobic digestors can make use of methane and animal waste collected from farms.

Another important use of biomass is conversion to ethanol, which can be used as a transportation fuel. By some estimates, there is sufficient available land in the U.S. to produce enough ethanol to replace half our national gasoline consumption.

Manufacturers and developers of advanced technologies are critical in making biomass energy profitable and environmentally benign. Continued development is necessary to bring down the cost and risk of biomass energy.

World Economics

By making sustainable, efficient, and clean biomass energy technologies economical in this country, we also allow those technologies to be made available to the rest of the world — a world where the energy demand is growing at an astonishing rate. Biomass energy accounts for 14% of the world's energy.[8] In 1992, a Congressional Office of Technology Assessment study assessed that 35 % of the developing world uses biomass energy, mostly inefficiently. Introducing more efficient technologies has the potential to more than double the energy output of biomass energy where 65% of the world's population resides.[9] The potential for bioenergy production in India, Brazil, Mexico, and other countries is enormous and is only beginning to be appreciated. Increasing business opportunities for the U.S. in the world market through bioenergy technologies has been a focus of the Department of Energy, whose Secretary, Hazel O'Leary, traveled to India with a portfolio of business ventures, among them a large bioenergy project.

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[8] Gary Elliott, President, National Wood Energy Association, Testimony before the Energy and Water Development Subcommittee on Appropriations, U.S. House of Representatives, April, 1994

Visionary Partnerships

The Department of Energy manages complementary biofuels programs at the National Renewable Energy Laboratory, which researches conversion technologies, and the Oak Ridge National Laboratory, which runs the Biofuels Feedstock Development Program. The collaboration between these two programs is an example of the partnerships that are required, and have only begun to take place, on a larger scale, among the Department of Energy, the Department of Agriculture, and the Environmental Protection Agency, and between power producers and the pulp and paper industry, which possesses tremendous experience in the bioenergy field. Energy and agricultural policy must be closely allied in order to develop working energy crop systems. The Department of Agriculture must acknowledge that the Department of Energy, through its feedstock research, has been acting in the interest of both energy and agriculture. Individual energy crops will vary immensely between regions, as will supply infrastructures, requiring regional demonstrations integrating the crop production and conversion process, economic and environmental analysis, and education.

The Department of Agriculture has permitted the harvesting of energy crops on Conservation Reserve Program land for the purpose of the Biomass Power Request For Proposals recently issued by the Department of Energy. The millions of acres enrolled in the CRP program are erodible or otherwise marginal land that, in the interest of a healthy environment, the Department of Agriculture pays $1.8 billion a year for farmers not to harvest. Switchgrass, the most favored of grasses grown for energy crops, is currently grown on CRP land, but it is not permitted to be harvested. If there is an environmentally safe way to put CRP land into production, which we strongly believe there is, the Department of Agriculture has a responsibility to pursue that market. Taxpayers are currently supporting farms that have the potential to support themselves. The Department of Agriculture has a responsibility to farmers whose subsidies may be cut out of budgetary necessity. If marginal land is put into conventional crop production, the economic and environmental effects will be damaging. Research dollars must be invested to create a market for energy crops, the cost of which will eventually be offset in part by the reduction of CRP payments.

Energy and agricultural policy must be closely allied in order to develop working energy crop systems.

At a time when every federal program is under scrutiny and the value of every budget questioned, the Department of Agriculture must make a commitment to reduce subsidies and promote the security of its constituents by seeking new markets for farm products actively. The biomass energy community — comprised of agricultural groups, environmental groups, and the energy community — will continue to inform potential growers and users of biomass of the potential of biomass energy. We ask Congress to do what it can to guide federal agencies that must work together if they are to work wisely.

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[9] Gary Elliott, *op. cit.*

**Utility Biomass
Energy Commercialization
Association**

February 10, 1995

UBECA MEMBERS

Regular Members

1. American Public Power Association
2. Burlington Electric Department (Vermont)
3. Edison Electric Institute
4. General Public Utilities
5. National Rural Electric Cooperative Association
6. New York Power Authority
7. Niagara Mohawk Power Corporation
8. Northern States Power Company

Southern Company:

9. Alabama Power Company
10. Georgia Power Company
11. Gulf Power Company
12. Mississippi Power Company
13. Savannah Electric Company
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1. Bechtel
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3. Energy Research Corporation
4. Western Regional Biomass Energy Program
5. Westinghouse Electric Corporation

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1. Electric Power Research Institute

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Mr. MYERS. The coal fired boilers we have now, could they use the biomass without much conversion?

Mr. MAURO. Yes, they can, but in relatively low quantities of biomass to coal or some other fossil fuel.

There are some tests under way to try to increase the ratio of biomass, primarily wood wastes to coal to get that up over 10 percent, which is the typical number used for pulverized coal boilers. There have been some tests up as high as 45 percent of wood products, but those have been tests that have been run in days and we do not know what the long duration effects of boilers are. So there needs to be probably more significant work to be done in that area.

Mr. MYERS. Well, thank you for your testimony. It is an area certainly we must be interested in. Thank you.

The committee will stand adjourned until 9:30 tomorrow morning.

[The statements of Mr. Mirin, Mr. Smith, Mr. Webb, Mr. Martin, Mr. McCrory, the American Public Power Association, Mr. Yurek, Mr. Kane, Mr. Voth, and Mr. Canada follow:]

TESTIMONY OF

DR. STEVEN M. MIRIN
CHIEF EXECUTIVE OFFICER AND PSYCHIATRIST IN CHIEF
McLEAN HOSPITAL
BELMONT, MASSACHUSETTS

BEFORE THE

HOUSE OF REPRESENTATIVES COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

MARCH 28, 1995

Mr. Chairman and Members of the Subcommittee, thank you for affording me the opportunity to appear before you today. I am Dr. Steven Mirin, Chief Executive Officer and Psychiatrist in Chief of McLean Hospital, located in Belmont, Massachusetts.

BACKGROUND

McLean Hospital is a not-for-profit comprehensive center specializing in psychiatric treatment and research. We are a major teaching hospital of the Harvard Medical School and an affiliate of the Massachusetts General Hospital. For one hundred-eighty years, McLean has served the needs of the mentally ill and their families. The Hospital offers a broad spectrum of general and specialized programs and services that include inpatient, community residential, and outpatient care. We are also a training site for professionals in all the mental health disciplines and home to one of the nation's largest groups of scientists specializing in mental illness research. The McLean research community includes over 270 research investigators and staff working on more than 380 research projects. Within our facilities and programs, these scientists carry out basic and clinical studies to advance our knowledge about the causes of these devastating illnesses and to develop more effective methods of treating and preventing them.

HIGH-TECH INSTRUMENTATION: NECESSARY TOOLS FOR TREATMENT AND RESEARCH

Mental illness affects over 30 million Americans, causing untold suffering and over 300 billion dollars of expense yearly in treatment costs and lost productivity. Fortunately, over the last two decades, there have been dramatic advances in our understanding of mental illness, and with these, the development of more effective treatments and the hope that we may some day be able to prevent these disorders. For example, the application of powerful new technologies in molecular biology have led to the discovery of genes that predispose individuals to the development of Huntington's and Alzheimer's disease, as well as providing us with clues as why some people are at greater risk to develop alcoholism or manic-depressive illness than others. At the same time, modern imaging techniques like positron emission tomography (PET), single photon emission computerized tomography (SPECT) and magnetic resonance imaging (MRI), have enabled us to study the structure, chemistry and function of the brain in living patients at a level of detail that was unimaginable a decade ago. Such studies promise to enhance our understanding about how and why mental disorders affect thinking and behavior and provide a basis for the early diagnosis and more effective treatment for future generations of patients. In 1988, in recognition of this fact, McLean Hospital augmented its efforts in neuroscience research by establishing a Brain Imaging Center, the only one in the nation completely dedicated to clinical evaluation and research for the mentally ill.

Though currently available technology and research has dramatically changed the outlook for the victims of mental disorder, future research will require even more sophisticated technology to exploit and advance our efforts in this arena. In mental illness, as in all other areas of medical research, future progress requires the use of highly specialized and, unfortunately, expensive, equipment, such as laser confocal microscopes and imaging devices, including newer, high field, MR instruments, to study humans, animals and even single isolated brain cells. However, it is difficult, if not impossible, for academic institutions to develop and acquire this type of technology on their own. Thus, continued research advances will require the continuation of federal support for the sophisticated instrumentation needed to conduct studies that will enhance our understanding of how the brain works in health and disease.

The Department of Energy has played an important role in the development of these technologies and the Department's continued support of such efforts, through its Biological and Environmental Research Program, is absolutely essential if the progress we have made thus far is to continue and ultimately, be translated into better care for patients. As you know, one of the primary objectives of the BER program is to utilize the Department's unique scientific and technological capabilities to solve major scientific problems in medicine and biology. In meeting this objective, the BER program is playing a unique, and critical, role.

FY 96 BUDGET OUTLOOK AND RECOMMENDATIONS

For FY 1996, the Department of Energy has proposed a $4.9 million reduction for the Biological and Environmental Research (BER) program, which would bring total funding down to $431.7 million. The largest component of BER's activity is general life sciences research. Research in this area supports the development of fundamental biological information and technologies. On behalf of McLean's research community and scientists everywhere, I ask the Committee to, at a minimum, fund the Administration's request for $113.6 million in FY 96 for this component of the BER program, and to include language in its report which encourages the Department to support research in the development, and shared use, of high field MR instruments for the study of brain function in centers where these research efforts can lead to improved diagnosis and treatment of the mentally ill.

Thank you for your attention and your support of these important efforts.

RURAL ENTERPRISES, INC.
TESTIMONY BEFORE
THE HOUSE ENERGY AND WATER DEVELOPMENT
SUBCOMMITTE ON APPROPRIATIONS

March 28, 1995

WITNESS:
TOM SETH SMITH, EXECUTIVE DIRECTOR
RURAL ENTERPRISES, INC.
DURANT, OKLAHOMA

Introduction

As Executive Director of Rural Enterprises, Inc. (REI) I appreciate this opportunity to present REI's testimony to the Energy and Water Development Subcommittee on Appropriations.

REI requests appropriation of $200,000 to assist Oklahoma businesses and industries. Such appropriation would allow REI to:

- Provide rural Oklahoma businesses and industries with access to new technology to help them become more competitive
- Identify companies and entrepreneurs that have the potential for utilizing the Department's technologies
- Solicit new products and processes for use by small business and industry
- Expand services to REI incubator tenants
- Better assist clients in recycling and energy-related operations

History and Experience

REI is a private, non-profit (501-c3) economic development organization headquartered in Durant, Oklahoma, incorporated in 1984. REI's mission is job creation and improving the economic climate of a depressed area with a combination of innovative services. The organizations services are carried out by the Financial Services Division, the Rural Technology Applications Team and the Industrial Development/Incubator Division. The majority of businesses served are manufacturers located in rural Oklahoma communities. REI's specific services to small businesses that will be expanded through funding from the Department of Energy are as follows.

Program Delivery

Rural Technology Applications Team (RTAT)

Through the Rural Technology Applications Team, REI provides assistance to small manufacturers who would otherwise not have access to new technologies. The Team's resources include more than 300 federal laboratories nationwide, utilized to match clients who are prospective users with advanced technology.

In 1994, RTAT accomplished the first rural Oklahoma incubator in which one tenant is utilizing technology of the National Aeronautics and Space Administration (NASA). To the best of our knowledge, it is the only "NASA incubator" in the state. The incubator houses another start-up businesses other technology of federal laboratories.

The first business located in the incubator uses NASA technology for metal separation and recovery from fluids. The second tenant is using federal technology in the production of ink from soybean oil, replacing 100 percent of petroleum-based ingredients.

Additionally, REI is working with the Department of Energy's Kansas City Plant, Office of Technology Transfer, about the possibility of obtaining equipment from the Department for use by REI incubator tenants and clients, specifically plastics-related businesses.

Examples of current clients and prospects that would benefit from Department of Energy appropriations include a manufacturing plant of composite products made from waste materials; a recycling service, a tire recycling plant and a waste control business.

Another prospect that could be more adequately assisted with funding from the Department is a shingle tab paving company. This company utilizes shingle tabs from a roofing company and pallets and plastic from the local Goodyear Tire plant. The shingle tabs are compressed into paving blocks and used to resurface parking lots, etc. The product is sealed with the recycled plastic and shipped out on the pallets discarded by the tire plant. The company is seeking technology to perfect the product to eliminate adhesion of the paving blocks to the wrapping material.

Database searches and document retrieval are also a part of RTAT services. In this way small businesses are assisted by locating markets, suppliers, raw materials, patent information, etc.

Industrial Development/Incubators

REI's incubator program provides start-up and expanding businesses an opportunity for growth while being nurtured with sound business and technical assistance, including access to energy-related technologies.

Nine out of 11 REI-managed incubators were occupied by year. This is an 82 percent occupancy rate, the highest record to date, which is an indicator of the demand and need for such assistance to start-up businesses. The incubator program is credited with creating/retaining 154 jobs in the last 10 years.

REI incubator tenants include fabrication and machine shops; a manufacturer of artificial firelogs and fire starterlogs; a manufacturer of a musical instrument, the hammer dulcimer; a cabinet, cabinet doors, wood flooring and wood shutters industry, and a manufacturer of elementary school children's furniture.

Complementing the incubator program is REI's Equipment Pool Project, the result of a competitive grant awarded by the Office of Community Services Discretionary Grants Program. Currently, a total of 17 pieces of manufacturing equipment has been acquired for use by Incubator tenants through the Project. It is our understanding that REI's Equipment Pool Project is the only one in the state.

Oklahoma is ranked seventh in the United States in numbers of incubators, with 19 facilities. REI oversees 11 of these facilities.

Financial Services

REI is a Certified Development Company (CDC) for the U. S. Small Business Administration (SBA) under the SBA 504 and 7(a). As a CDC, REI is able to provide small, expanding or start-up businesses with long-term, fixed rate financing for fixed assets. Financial assistance to small businesses totaled $8,803,838 in 1994, creating/retaining 490 jobs. In the past 10 years, over $42 million has been loaned to Oklahoma's small businesses through the financial services of REI. These dollars translate into more than 2,222 jobs created and many more retained in rural Oklahoma communities.

In addition to the SBA lending programs, REI has established its own revolving loan program. the success of REI's financial services is evidenced by the low loan default rate. Fore REI's Intermediary Relending Programs, the loan default rate is less than 1 percent while REI's Ozarks' Corporation for Innovative Development lending program has a default rate of 1 percent in the past five years.

REI also administers the SBA microloan program statewide. The microloan program is specifically for entrepreneurs that may not qualify for traditional financing. In 1994, financial assistance totaled $325,000 and 21 entrepreneurs in 19 different communities received financial and technical business assistance. In May 1994, REI was requested to appear before the U. S. House of Representatives Committee on Small Business to testify to the need of the microloan program and report on its success. REI received the $500,000 competitive award from SBA in 1993.

Summary

REI's track record for successful economic development was underscored once more when in 1994 the organization was awarded additional funds to satisfy a critical void that could not be addressed through present programs. Through the Office of Community Services Discretionary Grants Program, a competitive award for $399,862 was received by REI for a Small Business Technical Assistance Project.

However, with such success comes responsibility, accountability and also the need for appropriate funding. REI recognizes its responsibility to provide small businesses with quality assistance and access to technology. The organization also believes it is accountable to the small businesses to provide assurance that adequate resources are for REI to continue its services to them. The Department of Energy is one source of such a resource and it is crucial to the economic development programs of REI to serve our nation's communities and their small businesses.

Statement for the Record of
DAVID O. WEBB
SENIOR VICE PRESIDENT, POLICY & REGULATORY AFFAIRS
for
SUBCOMMITTEE ON ENERGY AND WATER
March 28, 1995

Gas Research Institute (GRI) appreciates the opportunity to submit testimony for the Record to the Energy and Water Subcommittee to present GRI's views and recommendations for federal funding of research, development, and demonstration (RD&D) programs within the Department of Energy (DOE). GRI is convinced the federal government has a vital role as the primary funder of long-term, basic research and that DOE, in partnership with industry, has a continuing role in applied energy RD&D. Based on this view point, GRI supports DOE's FY 1996 RD&D budget. Through an orderly transition over the next five years, the DOE budget for applied energy RD&D can be reduced by obtaining more cofunding from industry and rigorous prioritization of RD&D. A five-year transition is important to allow current jointly-funded projects with industry to be completed and to allow industry time to adjust its RD&D plans and budgets to accomodate a reduced federal role.

GRI is the RD&D management organization of the natural gas industry. Its mission is to discover, develop, and deploy technologies and information that measurably benefit gas customers and enhance the value of gas energy service. GRI jointly plans and cofunds many projects with the Department of Energy. Therefore, any change in policy or reduced levels of federal funding of energy RD&D has an impact on GRI and the gas industry's cooperative research program.

ENERGY RD&D POLICY: GRI's policy is to obtain an industry partner and industry cofunding once a project achieves proof of concept or within three years after project initiation. This is to ensure the products developed enter the marketplace. Since GRI does not manufacture or market the final product, it is essential that a manufacturer or other financial partner be included in order to facilitate the commercialization of a technology. Congress should consider using similar criteria for funding applied energy RD&D and encourage DOE to form partnerships with industry as part of the effort to reduce federal spending.

RD&D sets the future direction for development and use of our nation's valuable energy resources. The role of the federal government in energy RD&D is critical as a basis for decision-making by industry as it competes in an ever increasingly competitive world market. As you review the role of the federal government in energy RD&D, I would urge you to recognize:

1. The need for a greater level of support for basic research as compared to applied R&D,
2. the need for a reasonable transition period as federal budgets for applied RD&D are reduced,
3. the need to adhere to a consistent policy across all energy sectors, and
4. the need to allocate budgets in proportion to energy use in the U.S. economy across all energy sectors; i.e. eliminate current sector bias.

BASIC RESEARCH: The federal government must continue to have the primary role and responsibility for funding and managing fundamental, long-term basic research. Society receives large and continuing benefits from fundamental research. However, in today's competitive environment, individual private companies are market driven and, in nearly all instances, cannot capture the economic rent associated with any benefits derived from basic research to their bottom lines. Therefore, government's role as a primary funder of basic long-term research is both appropriate and essential because private industry will not and cannot fund the level of basic research necessary to achieve national goals and objectives.

APPLIED ENERGY RD&D: Both government and industry have a joint responsibility to plan, conduct, and fund applied energy RD&D to meet national goals. Industry should be included in the planning, financing, and management of the applied research. The partnership of private industry in federally sponsored RD&D accomplishes several goals.

1. If the research is an industry priority, industry will cofund. Without industry support after three years, government should question their own role in the research.
2. Industry will use rigorous cost/benefit analysis to prioritize the RD&D.
3. Once industry buys into the research and participates financially and managerially, the commercialization path will be shorter, because industry must get benefits from the research to survive.
4. When the project is ready for commercialization, industry is already on board and has a significant stake in ensuring the technology reaches the marketplace, thus ensuring success from government and industry investments.
5. Finally, duplication of research will be eliminated.

Government-funded applied RD&D projects should not proceed beyond proof of concept or go beyond a few years (for instance, three) without some industry cofunding. If industry cofunding reaches 50 percent of a project's cost, the industrial partner should assume responsibility for the daily management of the project.

DOE/GRI MEMORANDUM OF UNDERSTANDING: A good example of a successful industry and federal government partnership is illustrated by the DOE/GRI MOU signed last May. While GRI does not contract with the federal government and does not accept government funds, it does participate with the federal government through joint planning, cofunding, and cooperative funding of research. Under the MOU, representatives from DOE and GRI meet several times each year to outline their programs and identify future cofunding areas of interest.

Over the past few years, GRI and DOE have worked together successfully to produce results which have benefited both the gas industry and this nation. Among these successes are:

1. The Phosphoric Acid Fuel Cell--A commercially available 200 kW cogeneration package which provides very high efficiency power generation on site.
2. Secondary Gas Recovery--This technology taps into bypassed gas zones and partially drained reservoir compartments in existing gas fields for increased gas reserves. The initial research was so successful in the Texas field tests that GRI and DOE have now moved testing to the mid-continent region.
3. Gas Reburn--This technology involves injecting natural gas into conventional coal boilers to reduce nitrogen oxides, therefore allowing previously non-compliant utility boilers to now meet Phase I compliance targets under the Clean Air Act.

DOE and GRI are currently conducting or have committed to joint research totaling nearly $30 million in 1996. Many of these projects are slated for completion in the 1996-98 time frame. Most of the projects have at least 50 percent cost sharing derived not only from GRI but many other participating members of the gas industry. These projects cover the full realm of the gas industry, from basic research, and exploration and production of gas to the final end use of the product in the areas of cooling, power generation, and natural gas vehicles. Some examples of projects GRI is cofunding with DOE include:

1. Greater Green River Basin study and follow-on research of gas production from low permeability reservoirs;
2. the development at Johns Hopkins University Applied Physics Laboratory of an advanced natural gas prototype passenger vehicle with a range of 300 miles without refueling; and
3. Fracturing Fluid Characterization Facility (FFCF) at the University of Oklahoma to better characterize hydraulic fracturing fluids and proppant transport to allow improved fracture treatment designs for recovery of natural gas from tight formations.

TRANSITION TO NEW FEDERAL POLICY: During your consideration of DOE's budget, we ask you to consider several factors which would be helpful to industry.

1. A phasing out of projects rather than an immediate termination to give industry and DOE an opportunity to finish projects.
2. Give industry time to adjust their own budgets and reorder priorities. Without adequate time (3-5 years) to adjust, industry cannot fund even all of the highest priority projects Congress may terminate.
3. If Congress expects industry to conduct more of the RD&D for this nation, then some kind of incentive needs to be given, especially to the regulated industry, in order to make increased private sector RD&D a reality. For instance, the RD&D tax credit is set to expire mid-1995. A permanent extension of this tax credit with a flat 20 percent credit for funding of collaborative research would be one way to assist private industry in meeting the needs of this country to continue RD&D. This would be especially beneficial to regulated industries.

As you finalize the federal budgets, we ask that you be responsive to the need for a three-to-five year transition since immediately cutting programs will preclude industry from taking over even the most important RD&D. A reasonable ramp down allows industry to make adjustments in their own budgets and RD&D programs in order to continue the highest priority projects.

TESTIMONY

Submitted to the

U.S. House of Representatives

Committee on Appropriations

Subcommittee on Energy and Water Development

by

William R. Martin

Chairman, Nuclear Engineering Department Heads Organization (NEDHO)

and

Professor of Nuclear Engineering and Associate Dean
College of Engineering
University of Michigan
Ann Arbor, MI 48109

March 28, 1995

Chairman Myers and Members of the Committee:

This testimony is submitted by William R. Martin, Associate Dean of the College of Engineering, University of Michigan and Chairman, Nuclear Engineering Department Heads Organization (NEDHO). NEDHO is made up of the heads of 38 Nuclear Engineering Departments or Programs from universities in 29 different states. On behalf of NEDHO, I wish to thank this subcommittee for its past vision and leadership.

BRIEF SUMMARY OF REQUEST

I am here to present testimony related to the future of nuclear engineering education research, specifically as it relates to education of the future engineers and scientists who will serve in industry and government in this, and closely aligned fields. The Department of Energy's 1996 budget includes $6,130,000 for the following activities: reactor fuel, reactor sharing, reactor instrumentation, utility matching grants and nuclear engineering (NE) and health physics (HP) fellowships. We recommend that the committee allocate $10,100,000 in FY96 for support to cover critical needs in nuclear engineering education and research, including maintaining a strong and viable research reactor capability in the nation. Approximately $5,300,000 represents an investment in nuclear engineering education through research, matching grants with utilities and fellowships, and another $4,800,000 represents support for reactor fuel, reactor sharing and reactor instrumentation upgrades. We also recommend that a single federal agency, the Office of Nuclear Energy of the Department of Energy (DOE), be designated as the lead agency to oversee the needs of graduate education and research in nuclear engineering at the nation's universities. This testimony is in support of the nuclear engineering education research and fellowship portion of the program.

BACKGROUND

NEDHO consists of approximately 38 departments and programs in universities, with their principal discipline being nuclear engineering, which involves the design and operation of nuclear reactors and the application of radiation and nuclear techniques to science and engineering. Most of our departments are very broad-based, including disciplines such as health and medical physics, radiation detection and measurement, thermal/hydraulics, materials science related to nuclear processes, nuclear fusion and plasma physics, and the design and performance of fission reactors for the production of electricity. We educate not only the engineers that operate the nuclear power plants, but professionals such as the health physicists who assist with radioactive waste disposal and environmental restoration activities, or the medical physicists involved in cancer treatment planning, and the materials scientists who develop and test new materials for industry and research, using radiation-based techniques such as ion implantation.

FEDERAL SUPPORT FOR NUCLEAR ENGINEERING EDUCATION RESEARCH

The federal government has generally looked to the DOE to provide the guidance and support needed for the educational and research activities in nuclear engineering at the universities. The National Science Foundation (NSF) has traditionally deferred support for academic nuclear engineering programs to the DOE. For example, faculty members in other engineering or science disciplines can submit proposals to the NSF (or DOD) for funding of research and educational programs, but nuclear engineering faculty will be discouraged from doing this, with DOE being cited as the appropriate federal agency to support such requests. Prior to this year, the DOE had never embraced this concept and had not provided within its budget, sufficient resources to support these programs at an adequate level. Fortunately, Congress has had the wisdom to provide specifically for such support at a level of $10,100,000 from FY88 through FY93. This funding was reduced to $4,200,000 in FY94 and FY95 when Congress ceased support of the program and the DOE failed to incorporate the program into its budget.

The Congressionally-mandated programs had provided financial support for a number of activities in nuclear engineering education research over this six year period, specifically:

- Research grants
- Fellowships for promising U.S.-citizen M.S .and Ph.D. students
- Industry matching funds initiative that leverages funds from nuclear electric utilities
- Support of operations and modifications of university research reactors.

The following list describes these activities in more detail, except for those related to the research reactors, which are covered in separate testimony from the national organization of Test, Research, and Training Reactors (TRTR):

Research Grants. The research grant program is the first component of the nuclear engineering education program. This program is extremely important because it provides opportunities for faculty and students to explore long-term, innovative initiatives that could have a great impact in applied nuclear science and technology. Projects are performed over two to three years allowing doctoral students the time necessary to complete their research and dissertation as part of the project. In the six years FY88-FY93, over 800 proposals were submitted by faculty involved in nuclear engineering. DOE review panels recommended that 250 of these be supported because of their relevance to the national needs, or their promise of possible major new technological development. Due to the limited funds, only 80 of these recommended grants were actually funded, representing a three-fold shortfall in funds to support the proposals that could significantly enhance the nation's future competitive position in the world markets. This acceptance rate of approximately 10% is a factor of three less than the NSF acceptance rate of close to 30%. Thus, this program was among the most competitive in the nation and resulted in the highest quality research. The following list describes just of few of these projects:

(a) advanced processes for high level waste disposal (Purdue and Louisiana State),

(b) advanced lasers utilizing neutrons from nuclear reactors (Illinois and Missouri),

(c) artificial intelligence systems for enhanced power plant safety and performance (MIT, Ohio State, Penn State, Tennessee, and Texas A&M),

(d) radiation damage to pressure vessel steels and core components (California-Santa Barbara, Carnegie-Mellon, Illinois, and Michigan), and

e) medical uses of neutrons or lasers to cure cancer (Missouri and Georgia Tech).

I estimate that about 250 graduate students, most of whom eventually wrote their theses on the particular research project, were supported in the six years the program was in place. All projects were canceled and the students were left without support when the program was left unfunded in FY94. The loss of this program is likely to have serious consequences when considering the human resource needs by government and industry for nuclear engineering graduates. We recommend reinstatement of this research grant program at the previous level (FY88-FY93) of $3,500,000.

Graduate Fellowships. A second component of the nuclear engineering education program relates to graduate fellowships. These four year student stipends attract exceptionally high quality U.S. citizens to pursue Ph.D. programs. The demand for such graduates exceeds the current supply because of the diversity of areas in which they perform research, from studies of materials and radiation damage to advanced controls and artificial intelligence, to improved understanding of thermal-hydraulic behavior, to the design of radiation detection methods for the protection of personnel. Without the long term financial support provided by fellowships, many of the most capable B.S. graduates will bypass graduate school for high paying industry positions, and their participation in the long-term research and technology developments needed to maintain U.S. competitiveness will be lost.

The supply of highly trained Ph.D.s is becoming more important in a world where nuclear power is gaining increased acceptance in poorer nations where the access to specialized training in reactor safety and radiation protection is limited. It will increasingly fall to graduates of U.S. universities to provide the leadership in the safe, economic and competitive production of electricity by nuclear power around the globe. A shortage of manpower will seriously curtail our ability to meet this challenge. About 40 graduate fellowships, typically covering four years of support for doctoral students, are required to meet the recommendations of the National Academy of Sciences (NAS) to encourage talented U.S. students to enter this field [1]. The FY96 budget request supports these graduate fellowships at a level of $1,000,000 which is the level necessary to maintain the supply of highly trained Ph.D.s for industry.

Industry Matching Funds. The third element of the nuclear engineering education program is the Matching grants initiative. This Industry/DOE program provides up to $50,000 per year from industry, matched by DOE, to a university to support nuclear engineering research and education. This innovative and unprecedented program was initiated by nuclear electric utilities who were concerned that academic departments in nuclear engineering would not be able to maintain adequate academic programs to provide the necessary manpower to keep nuclear power as a viable option for providing electricity into the next century. This program is instrumental in promoting stronger ties between nuclear engineering departments and the nuclear industry, and will increase the efficiency in the use of DOE funding through matching money. This initiative also provides enormous flexibility for related activities such as faculty recruitment, which is a costly expense for a department. The program originally included industry grants to 16 departments, totaling about $1M each from the utilities and the DOE. The program was fully funded in the first year, but the DOE contribution was reduced to $0.5M in years 2 and 3. The utilities have continued to honor their full obligation in all three years. We recommend reinstatement of funding at $800,000 in the FY96 budget in order to meet the objectives of the Matching grants program.

RATIONALE FOR FEDERAL SUPPORT

Nuclear engineering education requires the use of expensive equipment, and in addition must compete for faculty and staff with national laboratories and industries that seek experts in these fields. The federal government has long recognized the need for federal support of engineering education, since advances in science and technology lead to substantial gains in productivity and international competitiveness, and federal funding is a critical component in this arena. Such support is primarily provided by the NSF for most technical disciplines. An exception has been nuclear engineering, which has always been handled by the DOE and its predecessor agencies. As emphasized in two reports [1,2] of the National Academy of Sciences (NAS), this federal support is necessary if this nation is to maintain nuclear energy as a viable source of electricity in the next century. The academic programs which provide the human resource base for nuclear power technology have a critical need for such support in order to attract the best graduate students and faculty to work in this field.

Nuclear engineering programs are unique in their blend of engineering and science, and it is unlikely that other disciplines can provide the specialized training and curriculum that characterizes nuclear engineering. [1] It is important that the DOE provide for this relatively modest program in its budget in order to prevent the further decline of nuclear engineering programs and research reactors, thus jeopardizing the goal of preserving the nuclear energy option for the 21st century. Furthermore, we note that the influence of the U.S. in the world nuclear markets has declined substantially over the last decade, with other nations now supplying a significant fraction of the nuclear products and services used in the U.S. A case in point is that for the last several years the U.S. has had no domestic source of the important Molybdenum/Tc-99 radioisotopes shipped weekly to 4000 hospitals in the nation. To avoid significant further erosion of our domestic capability, and of our export capability, the educational base needs to be strengthened. It is worthy of note that the nuclear electric utilities have recognized the real needs of the industry with their matching grant initiative.

NEED TO MAINTAIN THE NUCLEAR POWER OPTION

We are vitally concerned about the future of this nation, and of the world, without nuclear-generated electricity. On a per atom basis, nuclear energy represents a 20,000,000 fold gain compared to fossil fuel combustion, and a similar million-fold drop in the weight and volume of waste products compared to fossil energy. To not develop nuclear power to its fullest economical extent is to deny civilization a long-term, viable and environmentally benign energy source.

Failure to support these modest programs will jeopardize the goal of maintaining nuclear power as a viable energy option for this nation, and of maintaining our expertise, influence, and competitiveness in the world markets into the next century. A consequence which could be especially damaging to our nation and planet, environmentally and economically, is the tripling of the world's electricity capacity predicted in the next 50 years. At this point in time, nuclear generation of electricity appears to be the only viable, environmentally benign option available.

If these educational programs are not maintained, many of our brightest students in science and engineering will be deterred from entering this field, since there will be no financial support or interesting research projects in this field to work on. Such students are needed for the safe operation of the current generation of nuclear power plants, and to maintain and develop the technical expertise for future uses of radiation science and technology in the broad fields covering power, health, medicine, and industrial applications of the atom. Absence of funding for this program will further exacerbate a manpower shortage for the nuclear industry that is projected for this decade and well into the next century. [1] For instance, the Institute of Nuclear Power Operations has predicted that in the next ten years, 30% of the current professionals in the field of nuclear power will be retiring. When and if this country decides that additional nuclear power is needed, there will no longer be the expertise or technology to provide it, except by foreign corporations, which stand to benefit substantially as the U.S. abandons its once-leading role in nuclear reactor technology.[3] The irony here is that U.S. light water technology, licensed to foreign countries, may be successfully marketed by these very countries as our nation abdicates its leadership role in developing and utilizing nuclear energy. Indeed, we may become purchasers of our own improved technology (once again!).

Another NAS report [4] contains several recommendations which address the need to maintain the nuclear option as a substitute for fossil fuels to mitigate greenhouse warming. However, it is recognized that current concerns (safety, economics, waste disposal) need to be addressed and alternative reactor concepts need to be examined. In particular, investments in advanced reactor research and development are strongly recommended. The research and educational programs that we are recommending are consistent with these recommendations, which, it should be emphasized, come from a panel of environmental experts with no ties to nuclear power. Currently, the nation has 110 operating nuclear power plants. It is imperative that these plants continue to operate effectively for their design lifetimes and that this nation retain the capacity to replace them with newer plants if needed in the next century. These recommended programs will contribute to maintaining this capability.

CURRENT STATUS OF JOB OPENINGS

The 38 nuclear engineering departments or programs in our universities and colleges have an enrollment of approximately 3200 students, 1900 of whom are graduate students pursuing Masters or Ph.D. degrees. The career paths of the graduates over a recent 3-year period have been nominally as follows:

Nuclear Engineering	33%
Health Physics	10%
Medical Radiation Physics	8%
General Physics	2%
General Engineering	4%
Continued Schooling	39%
Other or Unknown	4%

Of those accepting position in nuclear engineering, about half of these were in the commercial nuclear power industry, and about half with the federal nuclear research and development establishment, primarily at the national laboratories. Of the latter, it appears that the majority involved environmental restoration activities. The health and medical physics areas have been a very rapidly growing employment field over the last decade, and continued growth is expected.

SUMMARY AND CONCLUSIONS

It is apparent that nuclear engineering represents a broad and diverse field, encompassing both education and research in a number of critical fields for this nation. It is important for the technological progress of our nation and for the safety of nuclear applications that the nuclear engineering discipline be maintained and adequately supported.

We recommend the continuation of the DOE program with reprogramming of $4,000,000 to reinstate the nuclear engineering education program in the Office of Nuclear Energy budget. These programs are critical to preserving nuclear power as a viable alternative source of electricity in the next century, as noted by several NAS reports.

We also support the Office of Nuclear Energy as the proper office to which this program should continue to be assigned.

We thank the committee for the opportunity to present this testimony.

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UNITED STATES HOUSE OF REPRESENTATIVES

104th Congress

First Session

APPROPRIATIONS COMMITTEE

Subcommittee on Energy and Water Development

Statement for the Record

Inertial Confinement Fusion at the University of Rochester

submitted by

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March 1995

Summary and Requested Action

The Department of Energy's (DOE) Defense Programs' Strategic Plan relies on maintaining the technology infrastructure and core competencies to insure that the U. S. nuclear deterrent is credible while contributing to the U. S. research base. The National Inertial Confinement Fusion (ICF) program plays a central role in the stockpile stewardship technology program with the threefold laboratory mission: (1) To demonstrate the ignition of small masses of thermonuclear fuel, (2) To provide access to physics regimes of interest in nuclear weapon design and to provide nuclear-weapons-related physics data, and (3) To provide an above-ground simulation capability for nuclear weapons studies and effects. With cessation of underground nuclear tests and contraction of the nuclear weapons research and development effort, ICF is a vital component of the DOE's technology-based stockpile stewardship program. A potential long-term spin-off benefit from the program is that ICF could provide a source of environmentally acceptable and economically competitive civilian power.

The University of Rochester's Laboratory for Laser Energetics (LLE), a participant in ICF research since the 1970s, is the only ICF program that has been jointly supported by the Federal government, State government, industry, utilities, and a university. At relatively small comparative cost to the government, LLE makes contributions to the National program and transfers technology to the public and private sectors through the training of graduate students and interactions with industry and other Federal laboratories. The facility serves as a National laser users' facility benefiting scientists throughout the country.

The Laboratory's prime mission is to validate the direct-drive option for ICF. There is a close collaboration among LLE, Lawrence Livermore National Laboratory (LLNL), and Los Alamos National Laboratory (LANL) to support the demonstration of ignition and gain in the laboratory, the objective set by the National Academy of Sciences' (NAS) review of the National program in 1990.

Reviews of the Rochester program by the NAS and the Inertial Confinement Fusion Advisory Committee (ICFAC) recommended the OMEGA Upgrade and the potential of direct drive as high priorities in the National program. This year, the OMEGA Upgrade, designated a major project by DOE, will be completed and be placed into operation after a four-and-one-half-year construction period. The OMEGA Upgrade will be the only facility that can demonstrate the scientific potential of direct drive to provide a modest- to high-gain energy option for the Nation. The Upgrade is being completed on schedule and within the $61,000,000 total estimated cost (TEC) schedule approved by DOE. The DOE-approved funding profile in the Cooperative Agreement for the LLE program, for operation of the new facility is shown in the table below.

	FY93	FY94	FY95	***FY96***	FY97
Operations	$15,590,000	$16,498,180	$17,165,770	***$18,191,770***	$19,150,770
Capital	$23,410,000	$8,700,000	$3,600,000	***$1,900,000***	$2,000,000
Total	$39,000,000	$25,198,180	$20,765,770	***$20,091,770***	$21,150,770

To provide the operations support for program deliverables and operation of the OMEGA Upgrade, and maintain the training programs at Rochester, a total authorization and appropriation, as included in the Administration's budget for FY96, of $20,091,770 ($18,191,770 for operations, and $1,900,000 for capital equipment) is requested for the University of Rochester for FY96.

Background

Thermonuclear fusion is the process by which nuclei of low atomic weights, such as hydrogen, combine to form higher atomic weight nuclei such as helium. In this process some of the mass of the original nuclei is lost and transformed to energy in the form of high-energy particles. Energy from fusion reactions is the most basic form of energy in the universe; our sun and all other stars produce energy by thermonuclear fusion reactions occurring in their interior. Fusion is also the process that provides the vast destructive power of thermonuclear weapons.

To initiate fusion reactions, the fuel must be heated to tens of millions of degrees. In stellar bodies, containment is possible because of the large gravitational force. On earth, two different paths are being investigated to demonstrate controlled fusion: magnetic confinement fusion and ICF. ICF involves the heating and compression of fusion fuel by the action of intense laser or particle beam drivers. There are two approaches to ICF, direct and indirect drive: indirect drive involves the conversion of beam energy to x rays to compress a fuel capsule in an enclosure called a hohlraum; direct drive involves the direct irradiation of a spherical fuel capsule by energy from a laser and may be more efficient energetically than indirect drive. For either approach, if very extreme density and temperature conditions are produced, it is possible to produce many times more energy in these fusion reactions than the energy provided by the drivers.

Inertial Confinement Fusion Program Focus

The 1990 NAS review of the ICF program[1] identified the program priorities that were subsequently endorsed and are being pursued by the DOE. The NAS report states "*The expeditious demonstration of ignition and gain should be the highest priority of the inertial confinement fusion (ICF) program. Adequate funding toward this goal must be assured.*"

To implement this recommendation, the NAS report identifies the glass laser program as the best path for demonstrating ignition (initiation of a thermonuclear reaction that can be self-sustaining) and propagating thermonuclear burn. The three high-priority tasks identified by the NAS to accomplish the program goals are: (1) To conduct precision indirect-drive experiments on the NOVA laser at LLNL, (2) To validate the laser architecture required for a National Ignition Facility (NIF) using the beamlet at LLNL, and (3) To construct the OMEGA Upgrade at the University of Rochester's LLE for precision direct-drive experiments.

DOE accepted the NAS recommendations, and substantial progress has been made on all three tasks. Encouraging results from indirectly driven targets from the NOVA facility at LLNL have been obtained. Based on these data ICFAC recommended, and DOE approved, proceeding with the conceptual design phase (DOE's Key Decision 1 or KD1) for a major facility, the National Ignition Facility (NIF). The purpose of the NIF is to demonstrate ignition, propagating burn, and modest gain in the laboratory. The NIF could begin activation in the year 2000, with KD4 (Project Complete) scheduled for the end of FY02.

LLE is the primary focus in the U. S. for the direct-drive approach to ICF. The NAS report states that direct drive may ultimately prove to be the best approach to ICF and provide the most efficient path to a laboratory-scale thermonuclear capability for both energy research and defense technology needs. OMEGA is the only facility that can demonstrate the scientific potential of direct drive to provide modest- to high-gain on the NIF. The decision on whether to implement a direct-drive capability on the NIF will be based on experiments using the OMEGA Upgrade through FY99.

For several years an extensive collaborative program between LLNL, LANL, and LLE has provided data on basic physics, beam smoothing, and unstable hydrodynamics using available laser facilities, such as NOVA. This collaboration will continue on the OMEGA Upgrade. The joint effort includes both nuclear weapons physics experiments and ICF experiments. This effort is a key element in the stockpile stewardship technology program. Physics issues for both ICF and weapons issues for the stockpile stewardship program that will be examined with the OMEGA facility fall into five broad categories: irradiation uniformity, laser energy coupling and transport, laser-plasma interaction physics, hydrodynamic stability, and hot-spot and main-fuel-layer physics. The OMEGA Upgrade and NIF programs are complementary. Figure 1 illustrates the schedule for the glass laser facilities to be used in the National program plan for inertial fusion.

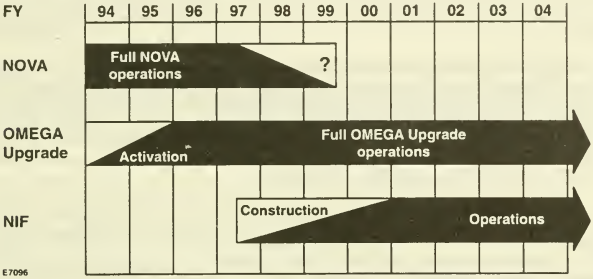

Fig. 1 Anticipated schedule for the operation of NOVA, the OMEGA Upgrade, and the NIF.

The figure illustrates how the National program has been structured to provide a full complement of mature experimental facilities from the present into the next millennium. If the NIF adheres to DOE's present schedule, construction of NIF will result in the eventual shut down of the NOVA laser, with OMEGA as the principal facility to continue experimental work during the final phases of NIF construction. Although the LLE program is focused on direct drive, OMEGA is capable of indirect drive (hohlraum) experiments as well. Both LANL and LLNL presently plan to use the indirect drive capabilities of OMEGA in the future.

The LLE Program for FY96

The OMEGA Upgrade system will deliver 30,000 Joules of temporally shaped, ultraviolet (351 nm) light to direct-drive targets. This will be the highest energy ever delivered directly to a fusion capsule in a laser-fusion experiment. By comparison, for example, the NOVA capsules are driven with up to 3,000 Joules of energy *($^1/_{10}$th as much as direct drive with the OMEGA facility)*. The larger energy will yield critical data for ignition-size capsules. At least 1,000 high-quality target shots per year are scheduled on the OMEGA Upgrade when operated on a single-shift basis. Both LANL and LLNL will collaborate with LLE on many of these experiments. Some of the shots will be devoted to weapons physics issues identified by LANL during FY95.

The goal of the glass laser direct-drive target physics program is to evaluate the performance of capsules near ignition conditions. In addition to providing data for the NIF, experiments can validate a direct-drive option for NIF that could result in two to three times higher fusion gains (gain > 50) than those available with the baseline (indirect-drive) NIF design. The diagnostic instruments for key experiments to be conducted in FY96 are currently being installed on the OMEGA target chamber.

An important element of the direct-drive program on the OMEGA Upgrade is to demonstrate beam smoothing techniques that ultimately will produce on-target irradiation uniformity of 1% to 2%. The first phase of the LLE-developed smoothing by spectral dispersion (SSD) approach will be implemented on the OMEGA Upgrade in late FY95 in preparation for precision direct-drive experiments to be conducted in FY96. This LLE technique has been implemented on NOVA, and variants of the approach are being incorporated in the NIF design to meet the irradiation uniformity requirements of both direct- and indirect- drive targets.

The development of cryogenic fueling is necessary for the post-NOVA-technical-contract ignition optimization experiments as well as for the hydrodynamically equivalent target experiments to be conducted on the OMEGA Upgrade. In collaboration with LLNL and General Atomics, a prototype cryogenic capability to be completed in FY98 is being developed for the OMEGA Upgrade. Cryogenic capability, advanced diagnostics development, and beam smoothing are all required for the NIF. The OMEGA Upgrade will be the principal National facility to develop these technologies for the program.

LLE attaches a high priority to providing education and training in the field of ICF and related areas. These include theoretical and experimental plasma physics, laser-matter interaction physics, high-energy-density physics, x-ray and atomic physics, ultrafast optoelectronics, high-power laser development and applications, nonlinear optics, optical materials, and optical fabrication technology. A total of 60 graduate students and 22 faculty members of the University of Rochester are currently involved in the unique research environment provided at LLE and represent many departments within the University, including Mechanical Engineering, the Institute of Optics, Physics and Astronomy, Electrical Engineering, and Chemical Engineering. More than 45 undergraduate students receive research experience annually at LLE. A high-school summer science program exposes ten talented students each year to the research environment and encourages them to consider careers in science and engineering. Many LLE graduates have made important scientific contributions in National laboratories, universities, and industrial research centers.

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Statement of the

AMERICAN PUBLIC POWER ASSOCIATION

Submitted to the

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT, HOUSE COMMITTEE ON APPROPRIATIONS

March 29, 1995

The American Public Power Association (APPA), the national service organization representing more than 1,750 local, publicly owned, not-for-profit electric utilities throughout the country, submits this statement to the House Appropriations Subcommittee on Energy and Water concerning FY 96 appropriations.

EMF Research

In the Energy Policy Act of 1992, Congress authorized a national Electric and Magnetic Field (EMF) Research and Public Information Dissemination program, better know as the "EMF RAPID" program. The goals of the five-year, $65 million effort (50 percent of which is to come from non-federal sources) are to determine the health effects of EMF, to demonstrate EMF mitigation technologies, and to disseminate information to the public. The program is in its third year.

This program is a perfect response to those who criticize traditional federal regulatory approaches to perceived problems. Instead of government mandating inflexible laws and regulations, this program promotes a public/private partnership toward obtaining solid, scientific research on EMF risks, if any.

APPA urges the Committee in FY 1996 to appropriate $6 million for the "core" DOE program and to provide $6 million for the EMF RAPID program – which will be matched by non-federal contributions.

Background

Over the years, many Americans have expressed concerns about the possible health effects from exposure to electric and magnetic fields that surround an electric current-carrying conductor. Some studies have indicated that there might be a link between EMF exposure and cancer or other adverse health effects, while many other studies have concluded that there is no association between EMF and adverse health effects.

APPA historically has supported additional research in an effort to find answers based in science, not speculation. APPA felt this goal could best be accomplished through a more aggressive federally directed research program jointly funded with federal and nonfederal dollars.

In the early 1990s, industry groups went to Capitol Hill and expressed their desire to expand and accelerate EMF research efforts. The federal government had been involved in various EMF research projects, but most of the funding was dispersed among the various federal agencies to do small individual EMF research projects (*i.e.*, DOE, EPA, DOD and OSHA all had EMF research programs).

Congressman George Brown (D-CA), then-Chairman of the House Science, Space and Technology Committee, agreed with industry that there needed to be a more aggressive, coordinated federal research effort that would give the public information and that would ensure credibility behind efforts to assess EMF health effects.

Congressman Brown succeeded in incorporating language in the Energy Policy Act of 1992, establishing the EMF RAPID program, a "public/private" partnership, whereby industry (including computer manufacturers, appliance manufacturers, electric utilities, etc.) would join together in support of a comprehensive program that would pool federal and non-federal funds, coordinate research efforts, avoid duplication, and enjoy public support. The legislation directed DOE to coordinate the program, with the National Institute of Environmental Health Sciences (NIEHS/NIH) doing a significant portion of the health-based research. Both agencies would provide information to the public. DOE was directed to solicit 50% of the funding from non-federal sources.

DOE has served as the coordinator of the EMF RAPID program, with NIEHS doing most of the health-based research. However, DOE has continued to fund biological research as well as develop an experimentally validated risk assessment program. Congress consistently has funded $6 million annually for the core risk assessment effort at DOE. Many argue that the core DOE program provides structure, while the new EMF RAPID program provides the impetus. The programs complement each other. DOE has indicated that the objective of the risk assessment work is to provide the public and policy makers with reasonable estimates on the degree to which, if any, EMF poses a health threat. APPA supports the core DOE program and therefore supports the $6 million funding level, which is included in the Administration's FY 1996 budget request.

Separate from the core DOE program, APPA urges the Committee to support the full $65 million, five-year, cost shared EMF RAPID program. The electric utility industry has committed $21.6 million and the National Electrical Manufacturers Association another $2 million to the five-year $65 million program. Public power systems have pledged to provide $3.2 million over five years to the program, providing their proportionate share to match each year's federal appropriations. APPA and its sister organizations have testified twice before the EMF RAPID Program's Advisory Board outlining our funding commitment. APPA has given DOE our share of non-federal funds in 1994, collecting contributions from 856 public power utilities, and is in the process of collecting 1995 funds.

Renewable Energy Resources

APPA fully supports the Administration's FY 96 budget request of $326.425 million for DOE's renewable energy programs, and urges Congress to protect the budget request for FY 96. This amount should be considered the minimum needed to ensure that renewable energy technologies become part of the full range of resource options available to our nation's electric utilities. In this era of increased competition in the electricity marketplace, it becomes increasingly important to support the continued development and commercialization of renewable energy resources. A budget request that is grounded upon working in partnership with the market signals a new way of doing business with DOE – an objective that this Committee and Congress should fully support.

Renewable Energy Production Incentive Program

DOE is about to produce final rules implementing the Renewable Energy Production Incentive Program (REPI). Authorized by the Energy Policy Act of 1992, REPI will be a DOE administered program that will make payments to publicly and cooperatively owned electric utilities at the rate of 1.5 cents/kWh for new solar, wind, certain geothermal, and biomass electric projects. These payments, subject to annual appropriations, were designed to complement similar tax credits available only to private entities. A 1993 APPA survey of our member utilities indicated that 60 utilities in 32 states are interested in participating in this new program.

The Administration is requesting $3 million for FY 96 to begin the program. Congress should appropriate no less than the $3 million for REPI. At this level and early into the program, eligible utilities can take advantage of this important renewable program. Production payments to utilities are an excellent market-based method to spur greater interest in this energy arena. However, stable and predictable funding is required if the production payment is to achieve its purpose.

Support Market-Pull Commercialization Collaboratives

While electric utilities will be taking a more active role in integrated resource planning and working with customers to install energy efficient technologies, federal support of such efforts remains crucial. No single player – be it the suppliers, the buyers, or the government – can assume the costs and risks of successful commercialization. Even with an effective collaboration solely between suppliers and the market as represented by utilities, there likely will remain near-term cost gaps. Government support to close the near-term commercialization gap can be pivotal. Limited government support is most effectively earmarked to those critical areas that exceed the risk thresholds of the markets and suppliers. Such support lowers cost hurdles, thereby stimulating sustainable markets that eventually will allow government support to be reduced to zero. Sometimes the support can be in the form of cost-sharing of hardware demonstrations; sometimes the support can be in the form of facilitating the startup of a market-led collaborative effort. APPA cautions that DOE must become a reliable, multi-year partner to the collaborative participants. This requires both stable annual appropriations a commitment to eliminating contracting red tape and delays at the DOE program level.

Advanced Hydropower Turbine

APPA supports DOE partnerships to accelerate research and development for a new generation of hydro turbines. The advanced turbine cost-share program arranged between DOE and the National Hydropower Association, for example, represents a laudable effort to design, develop and test a turbine that is superior in its ability to protect fish and aquatic habitat, while operating efficiently over wide ranging flow levels. Because hydropower is an important component of public power's energy mix, providing an emissions-free, abundant, low-cost renewable energy supply, we encourage the Committee to fund the Advanced Hydropower Turbine program at $7.5 million over the next two fiscal years. At this level, important progress will be made toward completing the conceptual design and testing of models.

Power Marketing Administrations

Once again, the Administration is proposing the sale of federal power marketing administrations (PMAs) over the next several years in an effort to show a short-term influx of cash to the Treasury at the expense of long-term revenues generated by these agencies. APPA opposes the Administration's proposal and commends the Committee for its continued insistence that Administration plans to divest any of the PMAs or to alter repayment policies must be implemented through legislation, and not through executive order. We urge the Committee to continue appropriating full funding for normal operations of the PMAs.

In addition, because all operational costs of the PMAs are paid by federal power customers through rates collected from the sale of power generated at federal dams, APPA urges the Committee to oppose any across-the-board budget or personnel cuts that would affect these agencies. The PMAs have contractual obligations to provide reliable power to their customers. To fulfill these obligations, they must have the resources – including the personnel – required to accomplish the job safely and reliably. It has come to our attention that DOE has frozen all new Senior Executive Service appointments. The Administrator positions at both Southwestern Power Administration and Southeastern Power Administration have been vacant for a number of months, and it appears this department-wide freeze may be forcing these PMAs to continue functioning with acting Administrators. The failure to fill these positions has had a negative impact on employee morale. APPA urges the Committee to exempt the PMAs from any government-wide or department-wide, arbitrary personnel ceilings or reductions.

Corps of Engineers and Bureau of Reclamation

The power marketed by the PMAs is generated at about 130 multipurpose federal dams operated by the Corps of Engineers and the Bureau of Reclamation. Under the current operational scheme, it is up to the Corps and the Bureau to budget for operation, maintenance, major rehabilitation, upgrading and replacement of the equipment at the powerhouses. Thus, although the PMAs are contractually responsible for delivery of power to their customers, their ability to meet these obligations is constrained by the reliability of hydropower units operated by separate agencies in different cabinet-level departments. Unfortunately, because the power function must compete with numerous other responsibilities assigned to the Corps and the Bureau – *i.e.*, water supply, irrigation, flood control, navigation, recreation, fish and wildlife conservation, salinity control, etc. – maintenance of the generation facilities does not always enjoy the same priority as it does at the PMAs.

Ongoing maintenance problems at the powerplant of the Corps' Harry S. Truman project in Missouri illustrate this point. Southwestern Power Administration (SwPA) has allocated the capacity and energy from this project and is obligated to deliver that power on demand from its customers, whether the project is operational or not. Since this project was completed, it seems like the units are out of service more often than they are available, primarily due to design deficiencies. The Corps believes it has solved the design problems, and has completed substantial alterations to two of the six units at the project. These units have provided reliable operation since they were returned to service. But before the repairs could be effected to the other units, problems were encountered with the overhead crane that is required to pull the units from their service bays for the repairs.

If the project were maintained by SwPA or any electric utility, repair of the crane would have received a high priority. Unfortunately, the Kansas City District of the Corps decided other projects had a higher priority. The crane has now been out of service for more than a year. During this period, four of the six generators have remained unavailable, and SwPA has had to purchase power to meet its contractual obligations to its customers.

To its credit, the Corps has finally sought funding for major rehabilitation of the powerplants at the Jim Woodruff (FL and GA), Hartwell (GA and SC) and Thurmond (GA and SC) projects that provide power to the Southeastern Power Administration (SEPA). APPA supports these major rehabilitation projects and urges the Committee to appropriate the $4.2 million sought for these repairs. However, the Committee is aware that these projects have been on the verge of failure for several years, because SEPA customers have testified to that effect before the Committee and repeatedly urged the Corps to seek emergency funding for these projects. In fact, if APPA and SEPA customers had not focused Congressional attention on the impending failure of these units, it is unlikely that the Corps would have sought the funding in this year's budget.

Contrast these situations with the Alaska Power Administration (APA), which does not rely on the Corps or Bureau for operation and maintenance of its projects, instead performing these functions itself. When APA realized that the generators at the Eklutna project were reaching the end of their useful lives, it sought an appropriation to rewind the generators last year. The Committee honored that request, and the project is well underway. There was never any danger of immediate failure, and the reliability of the project was not jeopardized.

Perhaps it is time for Congress to consider turning over operation and maintenance of the powerhouses at Corps and Bureau dams to organizations that have a real interest in ensuring their continued reliable operations.

Thank you for considering our requests for funding.

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CONGRESSIONAL TESTIMONY OF
GREGORY YUREK, PRESIDENT & CEO
AMERICAN SUPERCONDUCTOR CORPORATION
SUBMITTED TO THE
HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY & WATER

March 29, 1995

Mr. Chairman, thank you for the opportunity to submit this statement for the hearing record.

As President and CEO of American Superconductor Corporation (ASC) based in Westborough, MA, I would like to urge your continued support of a vital U.S. competitiveness program sponsored by the Department of Energy. The Superconductivity Partnership Initiative (SPI) is a government/industry partnership program designed to help maintain the United States' current lead in High-Temperature Superconductor (HTS) technology despite extraordinary, state-funded international competition. The SPI supports joint development of crucial HTS applications including power transmission cables, motors, generators, and utility protection equipment with a potential world market for these HTS products conservatively estimated to be $8 to $10 billion by the year 2000.

ASC is a recognized global leader in HTS technology with a focus on the commercial potential of HTS technology as it relates to the manufacture of wires and wire products. Founded as a Massachusetts Institute of Technology spin-off, ASC is at the forefront of HTS development. We are currently involved in three of the four ongoing SPI projects including a recent award to begin development of an HTS power transmission cable with our partners the Electric Power Research Institute, Pirelli Cable Corporation, and three of the Department of Energy Laboratories.

High-temperature superconductors are certain materials that conduct electricity with nearly perfect efficiency. When applied to electrical machinery applications, they bring benefits that will revolutionize conventional equipment paradigms and will directly influence the global competitiveness of the country that controls this technology.

DoE established the competitive SPI program in 1993 to enhance the progress made in HTS wire development and to assist companies committed to developing HTS wire-based products. Multi-disciplinary teams that include the product end-user were formed to engineer several applications simultaneously, while the under-pinning technology also continues to be improved. It is important to note that industry shares approximately 40 percent of the costs of these projects.

With the continued success of the DoE SPI program, the United States will be the winner of what is truly an international race for leadership in this multi-billion dollar industry. As a result, we will be in a position to develop a new technologically advanced electric power equipment industry that will create highly skilled, high paying jobs in the U.S. Because most U.S. electrical equipment is currently imported, nurturing the growth of this domestic industry will have a very favorable impact on the trade deficit. Without a doubt, the decision to support HTS development during this critical period will have important ramifications for the U.S. economy and security.

Only seven years after the discovery of high-temperature superconductivity, electric power applications based on HTS are now being designed and tested thanks in large part to government and private partnerships sponsored by SPI. These applications offer many benefits to the national electric system including:

- increased energy efficiency
- reduced equipment size
- reduced noxious emissions
- increased power grid stability and reliability
- deferred utility infrastructure expansion
- flexible electricity dispatch and load management

All of these benefits have a common outcome: lower electricity costs and improved environmental quality.

Through SPI sponsored research and development, DoE is projecting that by 2010 the U.S. electric power systems equipment industry will regain a major share of the global market by offering superconductor products that outperform the competition. In the U.S., the electric power system will gain efficiency and flexibility through increased use of HTS devices. As a result, U.S. productivity and efficiency, especially within the industries that are large users of electricity, will be greatly improved.

Mr. Chairman, the funding level included in the President's budget for fiscal year 1996 would only fund one of the four current SPI initiatives. In order to meet the vital funding needs of the four ongoing SPI-sponsored projects, I strongly urge your support for an appropriation of $40 million in fiscal year 1996. We are at a critical stage in the SPI program. Continued funding is vital for both HTS product commercialization and to ensure the United States' continued leadership in this industry. SPI has been a model for successful government/industry partnerships, but we need your support to keep the United States at the forefront of this new technologically advanced industry.

TESTIMONY BY
DANIEL KANE
PRESIDENT, ENGLEWOOD HOSPITAL AND MEDICAL CENTER
ENGLEWOOD, NEW JERSEY

SUBCOMMITTEE ON ENERGY AND WATER APPROPRIATIONS OF THE U.S. HOUSE OF REPRESENTATIVES

MARCH 29, 1995

Thank you for the opportunity to submit this written testimony to the House Energy and Water Appropriations Subcommittee regarding the efforts of Englewood Hospital and Medical Center, located in Englewood, New Jersey, to establish the "Dizzy Gillespie Cancer Institute." We believe the Institute can serve as a model in the use of technologically-advanced medical care for cancer prevention and treatment to be replicated in other hospitals across the country. The Institute is part of a comprehensive institutional plan to expand the capabilities and outreach of Englewood's oncology programs in response to a significant regional need for improved cancer care.

As a major medical center and cancer facility in New Jersey, Englewood is redesigning its care and treatment programs to provide a more coordinated system of patient-centered care: to represent a cancer care delivery system that places the patient and family at the center of all institutional activity, with the guarantee of complete access to all elements of the process. The "Dizzy Gillespie Cancer Institute" will utilize state-of-the-art medical technologies to improve cancer care treatment and diagnosis for the Englewood community, as well as for other similar cancer facilities.

The Institute will be one of the leading facilities of its kind in the country providing patient-centered cancer services to a broad community of need. The combined and enhanced existing programs in cancer research and treatment, pediatric care, training, education and community outreach, cancer detection and treatment, hospice care, and other specialty areas will provide substantial opportunities to meet one of the most critical health challenges in the 1990's.

The proposed Institute represents a unique demonstration project to show how health administration challenges can positively meet the demands of cancer care through community, state and federal teamwork. Englewood Hospital and Medical Center's innovative plan for a regional cancer institute will successfully meet that critical need. The Institute will represent a model for effectively providing comprehensive, customized prevention, early detection, diagnosis, treatment and rehabilitation services, and educational programs for cancer patients and their families through the use of advanced medical technologies.

With nearly 1,300 employees, 700 professional nurses, a 500-member medical staff and 1,000 volunteers, Englewood Hospital and Medical Center serves more than 350,000 residents in 30 townships. Englewood Hospital and Medical Center has one of the most preeminent medical staffs of any hospital in New Jersey. Members of the staff represent virtually every clinical specialty and subspecialty and hold one of the highest Board Certification rates in the country. As the first organized medical staff in Bergen County, the physicians have been leaders in medical care for over a century.

Englewood is seeking a public-private partnership to effectively meet the challenges of cancer diagnosis and treatment in order to serve larger populations of cancer patients and their families throughout New Jersey. We particularly want to be able to provide increase access and outreach to our indigent and minority cancer patients.

INNOVATIVE PROGRAM IN BREAST CARE TREATMENT:

With the incidence of breast cancer on the rise to the point where one out of every nine women are affected, Englewood has pioneered an innovative comprehensive breast care program that provides early detection, single site, same-day diagnosis and treatment through its Cytodiagnosis and Breast Care Center founded in 1991. Uniquely known as the "Englewood Model", the Center employs a condensed diagnostic process and the smooth procedure is shown to dramatically ease the psychological trauma for the patient, speed the planning of further treatment, reduce the cost of care and increase patient volume.

Previous to the institution of same-day, single-setting diagnoses, Englewood Hospital and Medical Center diagnosed and treated approximately 50 new breast cancer cases each year; now Englewood manages approximately 250 new cases each year. The unparalleled same-day diagnostic facility also results in lower cost of care for the Center and consequently, lower patient fees. Innovation, technology, and advanced applications of scientific and laboratory discoveries continue to enable Englewood to develop and administer better, safer, and more cost-effective cancer care, treatment, and diagnostic procedures.

BUILDING ON A SOLID FOUNDATION:

For over a century the goals of Englewood Hospital and Medical Center have remained the same: bringing the best of modern medicine to every patient, providing health education to the community and serving the medically indigent. Responding to the new challenges presented by national health care reform, Englewood has recently begun to restructure and strengthen its programs. To adapt to the changing landscape of American health care, Englewood has increased its affiliations and capabilities, expanded its partnership with Mount Sinai School of Medicine, extended its facilities and medical staff, and improved its technology, educational programs and research endeavors.

The technology obtained in recent years has provided Englewood with new, important advances in the battle against cancer. Englewood has achieved tremendous advances in surgery, radiology, and other diagnostic and therapeutic techniques. They have acquired more accurate and targeted means for diagnosing and treating disease, as well as the ability to administer the best, most effective therapies available. These factors, coupled with ongoing clinical research, position Englewood as a unique health care facility for detecting, treating, and curing cancer.

THE DIZZY GILLESPIE CANCER INSTITUTE: ADVANCED CANCER CARE FOR THE 21st CENTURY

The **Dizzy Gillespie Cancer Institute** will address the wide scope of needs in each individual case, including medical, physical, educational, emotional, advocacy and access needs. The Institute will be one of the leading facilities of its kind in the country providing patient-centered cancer services to a broad community of need. The combined and enhanced existing programs in cancer research and treatment, pediatric care, training, education and community outreach, cancer detection and treatment, hospice care and other specialty areas will provide substantial opportunities to meet one of the most critical health challenges in the 1990's and into the next century.

The Dizzy Gillespie Cancer Institute will serve as a regional and national model in cancer care that can be replicated in medical centers across the country. We envision an institute that will be a leader in community-based cancer care in four key areas: 1) Innovative Cancer Care, Prevention, and Treatment Systems; 2) Cancer Care Cost Containment; 3) Community Outpatient Cancer Services; and, 4) Automated Cancer Information and Education Services.

The Dizzy Gillespie Cancer Institute will effectively demonstrate a truly viable approach to containing health care costs through consolidation of resources, applied technologies, elimination of inefficiencies and unnecessary duplication. The Institute will work in partnership with payers to contain health care costs through information sharing and improved quality of care through careful analysis of outcome measurements. The Institute will house an integrated patient care information system to assist Center-administration coordinated care, and effectively and efficiently allocate valuable human and capital resources.

We expect to expand our breast care program to serve as a national model for breast cancer diagnosis and treatment throughout the country. We are one of the first comprehensive facilities in the United States where cytopathologists and radiologists conduct rapid, highly accurate and non-surgical cancer diagnosis in a single setting. We also hope to implement a three-dimensional treatment planning system which permits precise targeting of cancer cells, and eliminating radiation to normal and unaffected cells. For many tumors, the rate of local control of the cancer is a function of the dose of radiation delivered. Increased doses of radiation achieved with 3-D planning can result in more control of treatment, and ultimately higher rates of cure.

Conformal therapy is the corollary to 3-D treatment planning, which allows for higher radiation doses to be precisely delivered to the particular organ being treated. This high dose therapy is made possible through the development of the multileaf collimator and the computer controlled linear accelerator. The collimator contains multiple pairs of thin leaves that attenuate the radiation beam. Since each leaf can move independently, a field of any shape can be rapidly created which eliminates the need to fashion and insert customized beam-shaping lead blocks. Eliminating the need to continually re-enter the room and place the lead blocks dramatically reduces patient treatment time and patient movement.

We want to be able to utilize stereotactic radiosurgery which also allows for exquisitely precise radiation treatments to small tumors such as brain tumors. This treatment technique can also be used for artereo venous malfunctions. We would like to integrate cryosurgery cancer treatment into our new Institute's treatment options which uses an ultrasound guided minimally invasive procedure to deliver super cooled liquid nitrogen to destroy diseased or cancerous tissues via a probe. The system Englewood would purchase is specifically designed to treat prostrate cancer by freezing and destroying the prostrate.

Englewood is also planning to establish an "Ambulatory Care Center" as part of its overall capital expansion initiative to ensure increased availability and accessibility of cost effective services to the community. The ambulatory care center will be the hub of clinical services provided as outpatient care at Englewood, and will complement the goals of the Cancer Institute. This proposed Institute will house Englewood's expanded breast care center, as well as a dedicated ambulatory surgery center. With more exam and testing space, Englewood will be able to accommodate the increased demand for outpatient breast and other cancer detection. In addition, as an increasing percentage of surgical cases are being done without an inpatient stay, the Ambulatory Care Center will focus on same-day treatment and discharge.

The Institute will allow for outpatient radiology and diagnostic testing in much more efficient manner, with the ability to accommodate routine diagnostic testing, as well as support patients who are referred from private physicians' offices. Englewood will be able to offer a wide variety of outpatient physician services including pediatric and clinical care, all in the same setting. Englewood Hospital and Medical Center and its staff of dedicated professionals are constantly striving to gain a foothold in the global battle against cancer. We are making daily advances in our ability to detect, diagnose and treat cancers in early, more treatable stages, and our ongoing aim is to be a promise of hope for the community we serve.

WINNING THE WAR ON CANCER: A FEDERAL PARTNERSHIP

The increasing incidence of cancer is a national crisis and warrants a national response. The cancer mortality rate in 1994 for the State of New Jersey was over 185,000 deaths, one of the highest rates in the nation. At the same time, New Jersey had over 43,000 new cases of cancer. Breast cancer has been skyrocketing in New Jersey over the last several years -- in 1994, there were over 18,000 deaths alone due to breast cancer. At a time when there is a tremendous need to consolidate national resource and avoid costly duplication of services and treatment programs, Englewood Hospital and Medical Center will provide innovative insight and experience for effectively meeting the goals of current health policies, as well as to look to the future, regarding treating cancer patients in a coordinated, cost-effective, yet highly dignified manner.

A Federal partnership is sought for the purpose of expanding Englewood's capabilities in cancer diagnosis and management in order to serve a larger population within New Jersey, and also to serve as a national model for comprehensive cancer diagnosis and treatment nationwide. Capital development goals and objectives at Englewood include facilities enhancement, expansion and development of existing cancer diagnosis and treatment programs, expansion of the existing Breast Care Center, and other related innovative research training and records management initiatives.

In our efforts to expand our existing cancer care capabilities, Englewood Hospital and Medical Center is seeking federal support up to $7.5 million in FY 1996 funding toward the total cost of the initiative estimated at $36 million. Englewood Hospital and Medical Center is contributing substantial resources of its own to this endeavor as we seek to be a model in cost-effective and accessible cancer care for the 21st century.

We believe that Englewood can serve as a national model in community-based cancer care that effectively demonstrates the utilization of a talented medical staff, innovative technologies, state-of-the-art medical procedures, and a strong personal commitment to our patients, their families and friends, and the entire Englewood community. As a major public policy concern for both the medical community and public officials at the local and national level, we are constantly seeking answers to unanswered questions to a disease that is now steadily shifting from heart disease as the leading cause of death in the industrialized world.

The Dizzy Gillespie Cancer Institute will enable Englewood to more clearly focus our current efforts and programs in cancer care drawing upon the strong resources of our physician and medical staff and the application of advanced technologies to provide new, critical advances in cancer treatment and research. The Institute will enable our patients to receive the best, most-effective cancer therapies available within a managed-care environment. In tandem with ongoing clinical research, the Institute will position Englewood as a unique regional cancer facility that combines new and innovative technologies for detecting, treating, and curing cancer well into the year 2000 and beyond.

TESTIMONY

Submitted to the

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

By

Marcus H. Voth
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Chairman
University Reactor Support Committee of the
National Organization of Test, Research
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March 28, 1995

INTRODUCTION AND SUMMARY

This testimony is submitted by Marcus H. Voth, Director of the Radiation Science and Engineering Center, The Pennsylvania State University and Chairman of the University Reactor Support Committee of the National Organization of Test, Research, and Training Reactors (TRTR). TRTR is made up of the directors and managers of US research and test reactors, including 36 currently operating university research reactors (URRs) on 32 campuses in 25 states.

On behalf of TRTR, we wish to thank this subcommittee for its past vision and leadership. During the 1980's, URRs were permanently shut down at the rate of two per year. With the support of this committee, $1M per year was provided in FY90 through 93 to upgrade URR instrumentation. It is noteworthy that there were no additional shutdowns during these years. However, this important support was not appropriated for FY94 and FY95 during which one additional URR was permanently shut down. The Department of Energy has partially restored that program in the budget proposal before Congress. We ask that this provision be fully funded at its previous (FY90-93) level. of $10.1 M.

This testimony supports the following conclusions:

- **University reactors are valuable national resources; they are the source of neutrons for research in such diverse areas as medical isotopes, human health, life sciences, environmental protection, advanced materials, and food science.**

- **University reactors provide highly qualified, technically knowledgeable personnel needed by national laboratories, the federal government, academia, and private industry for basic and applied research critical to US technological competitiveness.**

- **Host institutions bear a disproportionate share of URR operating expenses. Sharing of costs for such major research facilities by federal agencies demonstrates to university administrators their significance and value.**

- **The National Academy of Sciences recommends federal support to maintain, refurbish, modernize and upgrade existing URRs, a much less costly alternative than replacing them.**

- **The University reactor fuel assistance and support line item proposed for the FY96 budget at $6.13M represents a significant reduction from funding in previous years. We respectfully request and submit justification for returning to the FY90-93 level of funding of $10.1 M.**

MISSION AND CONTRIBUTIONS OF URRs

University research reactors in the United States form a fundamental and vital component in a broad spectrum of our national research and education infrastructure critical to such national priorities as health care, education, environment, and technology transfer. They are a source of neutrons for multidisciplinary research efforts resulting in contributions to the fields of physics, chemistry, biology, medicine, epidemiology, archeology, environmental sciences, material sciences, fluid mechanics, geology, energy production and many other areas.

In education, URRs are used for laboratory instruction in all these fields with emphasis on radiation measurement, reactor science and engineering, and applications of radiological techniques. Many of the reactors serve as a center for precollege education programs offered for high school students and teachers who come to the reactor for instructional programs and research. URRs also form the base for education of future scientists and engineers in the above mentioned broad range of disciplines that use reactor based techniques to solve unique problems.

Compared to a **national user facility**, URRs often provide a superior environment for graduate research because of less rigid facility scheduling, enhanced flexibility, lower operating costs, and available local supporting capabilities. They are a rich resource for radiation sciences research, and can serve as a development base for new techniques and advanced instrumentation to be used at national centers.

The **professions entered** by URR users are as diverse as their research disciplines. Many who study biology, chemistry, epidemiology, and radiological health may enter professions in medicine and human health. Others may enter professions in advanced materials research and development, energy resources development and production, and environmental programs. Education and research experience received at URRs benefit future employers including government agencies, national laboratories, medical practice, academia, and private industry; this is one of the most effective and efficient forms of **Technology Transfer**.

The mission of URRs and **nuclear engineering education** are frequently confused as is their relationship to the commercial nuclear power industry. Nuclear engineering education involves the study of radiation science, including the operation of nuclear reactors. URRs serve as radiation sources and laboratory facilities for nuclear engineering students. However, nuclear engineering is only one of the numerous disciplines using URR facilities. While the commercial power industry employs nuclear engineers, the majority of graduates find employment in other sectors. The need for state-of-the-art URR facilities transcends the status of nuclear power development through the numerous other applications for radiation science.

University research reactors are used for **environmental studies** such as acid rain and pollution dispersion. They also contribute to nuclear power technology, the only demonstrated energy source which assures sustainable development of our planet while preserving our reserves of fossil fuels for consumer and agricultural product feed stocks rather than combustion fuels. The **nuclear test ban treaty verification** is also being supported. Remote radiation monitoring instrumentation able to sense clandestine weapons testing (components of a global atmospheric radionuclide detection system) is being developed and tested at a URR facility.

With the attention currently focused on national health care, it is appropriate to address URR **contributions to medicine.**

- Many URRs contribute to medicine through basic research in the life sciences such as identifying molecular structures and interactions. They also produce and investigate applications of radioisotopes.
- One URR (the University of Missouri) is high enough in power to produce significant quantities of a wide variety of radioisotopes for medical application and life sciences research. University researchers there study new ways to use radioisotopes for therapy of cancer and other ailments as well as using them to answer important basic questions about living organisms. The radioisotopes from this URR also support similar research across the country.
- Another URR (Massachusetts Institute of Technology) is investigating the direct neutron irradiation of deep-seated melanoma (skin cancer) and brain tumors that have taken up a boronated drug. This treatment is termed Boron Neutron Capture Therapy (BNCT). Patient treatments and animal studies have suggested that BNCT may be effective in combating these diseases. In contrast, these diseases are invariably fatal when treated with conventional therapies.
- Neutrons and radioactive isotopes are such common research tools that today well over half of the new drugs approved by the FDA are developed using radiation based science and technology. Many of the 10,000,000 nuclear medicine tests done annually eliminate the need for exploratory surgery, reducing both the pain and the cost of treatment while improving the quality of the diagnosis.

URR FUNDING SOURCES AND NEEDS

Most URRs were constructed in the late 50s and early 60s with major federal financing. Since then, operating costs have been borne primarily by the host institutions with relatively little funding available for major maintenance, equipment replacement, or upgrades.

In 1991 TRTR conducted a comprehensive survey of URR expenses and funding sources, showing that the annual operating cost averaged $1M per reactor or $37M for the total number of operating URRs. Of the total funding, 85 percent came from the host institutions and 12 percent from the federal government. Primary federal support was from the DOE University Reactor Fuel Assistance Program. In recent years this has been budgeted for $3.7M. However, it includes conversion of some URRs to low enriched uranium fuel which only addresses a perceived national security issue without necessarily improving reactor performance.

The proposed FY96 budget includes a $6.13 M line item under the Office of Nuclear Energy entitled "University reactor fuel assistance and support" which consolidates three previous initiatives:

- The "University reactor fuel assistance" program historically funded at $3.7 M annually under the Office of Energy Research except in FY95 when it was budgeted under the Office of Science Education and Technical Information.
- Fellowships in health physics and nuclear engineering historically funded by the Office of Nuclear Energy at $0.4-0.5 M annually.
- Special appropriations for reactor instrumentation improvements and academic research grants funded through the Office of Energy Research at $1.0 M and $5.0 M, respectively, through FY93.

The history of total funding for these programs for the decade has been as follows:

FY90	FY91	FY92	FY93	FY94	FY95	FY96
$10.1 M	$10.1 M	$10.1 M	$10.1 M	$4.2 M	$4.2 M	$6.1 M

We sincerely appreciate the committment and vision shown in past appropriations and in the proposed FY96 DOE budget. While the proposed $6.1 M represents a significant increase from the two previous years, it is significantly less than the $10.1 M in years prior to that. We believe that $4.0 M should be redirected to augment the proposed $6.1 M, restoring the historic $10.1 M. This would reinstate an important program that was totally omitted from the $6.1 M request, research grants for graduate studies. Furthermore, we recommend that a portion of the research grant funding be directed to design projects leading to improved URR performance or experimental capabilities, thereby simultaneously meeting the objectives of both graduate student support and URR upgrades. Since the research grants for graduate studies are academic in nature they fall more in the purview of the Nuclear Engineering Department Heads Organization (NEDHO) than in the TRTR area of reactor facilities; we therefore defer to the rationale presented by NEDHO and endorse their testimony on this subject.

Why is federal support needed? Investments must be made to modernize these facilities which are up to 40 years old, including equipment replacement, new equipment purchases, and major preventive maintenance.

- Vacuum tube instrumentation must be replaced with solid state due to high failure rates and lack of replacement parts.

- Modern equipment such as multi-channel analyzers must be purchased and major new research capabilities such as neutron scattering facilities must be added to match the capabilities of other research reactors throughout the world.

- Major life extension projects such as lining concrete pools or replacing embedded piping are necessary.

- Compared to the cost of new construction or other consequences the cost to maintain and upgrade URRs is relatively small and an extremely sound investment.

A 1988 report by the National Academy of Sciences entitled **University Research Reactors in the United States-their Role and Value**, examines the role of URRs in the areas of research, education, and service, especially in light of the decreasing numbers of reactors. The report concludes that "Policies that will limit closures and encourage modernization of a substantial subset of existing reactors, sufficient in numbers and types to meet national and academic needs for research, education and service are clearly in the national interest." The report recommended an annual level of federal funding for URRs of $20M (in 1988 dollars) but in fact identified an overall need for approximately $35M per year.

A report to Congress in response to the Energy Policy Act of 1992 substantiates the Academy recommendation. Specific needs totaling nearly $80M were identified. Upon analyzing the data, the report concluded that $6M per year be appropriated for five years, starting in FY96. (Reference: Secretary of Energy Hazel O'Leary to Vice President Al Gore, May 19, 1994.) While the special congressional appropriation of $1M per year for FY90-93 met some specific instrumentation needs, it was far short of that required for significant upgrades and new capabilities and should be expanded to keep pace with the rate of obsolescence.

The importance of such initiatives, however, is that it sends a powerful message to administrators in the academic community that national leaders do see a need for URRs and are taking steps to improve the situation. **Since no such funding was appropriated for FY94 and FY95 it is particularly important for academic administrators to see tangible evidence of significant, timely support to maintain their confidence in the federal government's interest in a healthy infrastructure of URR capabilities.**

Without significant URR support, the US will continue to fall behind its international competitors in technological advances. The number of papers presented at the recent International Conference on Neutron Scattering, a frontier of nuclear science research with widespread applications in fields as diverse as health science and advanced materials, is indicative of the loss of US leadership:

Origin of Papers	Percent
England	21
France	20
Germany	14
Japan	10
United States	4
Others	31

CONCLUSION

University research reactors have made major contributions since their construction in the 1950s and 1960s. They continue to support national priorities such as health care, education, environment, and technology transfer. However, these aging facilities now require major investments if they are to remain competitive with neutron sources in Europe and Japan where major commitments have been made to enhance the viability of neutron sources while the US has fallen behind. The operating costs of URRs have largely been borne by the host institutions, but the resources are not available to support both operation and upgrades. By far the most cost effective approach to optimizing our research reactor capability is to maintain, refurbish, modernize, and upgrade our existing facilities.

1019.95 mhv

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March 16, 1995

Before the

HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

of the

U.S. HOUSE OF REPRESENTATIVES

Written Statement in the Matter of:

1. Applying a new electrical resource to enable the Bonneville Power Administration to thrive in the new competitive marketplace with competitive prices, comparable in abundance and costs; in concert with hydroelectricity, supplying present and new electric power market demands and **PROVIDE A MORE RAPID FEDERAL DEBT PAY-BACK,**
2. Removing solar photovoltaic electric generation from two decades of Department of Energy sustained research and development, to a near-term strategic electrical generation resource; allowing **CLOSING OF THE DOE PHOTOVOLTAICS PROGRAM,**
3. Eliminate the burden the Northwest Power Planning Council imposes on limiting growth of electrical energy in the Region, in efforts to micro-manage BPA and all energy and fisheries planning, by Council programs that adversely impact Regional electric rates, **DISCONTINUING THE COUNCIL AND ITS PROGRAMS COSTS.**

A. Authority and Background

I am Alfred H. Canada, electrical engineer, class of '40, Oregon State University, native Oregonian; retiring in 1974 from a long career in engineering management, including early work in power engineering, military infrared fire-control systems, on loan to the Advanced Research Projects Agency in 1961, early-warning missile detection satellites and surveillance, and command and control systems. Undertaking large-scale solar photovoltaic generation power plant engineering design and application in 1975, as a self-funded retirement-avocation, the background and knowledge developed has been called on; as a consultant in 1979 on large-scale Solar Voltaic Generation Power Plants for the DOE, Flat-Plate Solar-Array Project at the Jet Propulsion Laboratory, invited testimony before a select committee of the California Legislature in 1977 on a solar voltaic generation power plant alternative to the electrical generation expected from the shortly-thereafter-canceled nuclear SUNDESERT power plant, and admitted to an Intervene to show a solar voltaic generation power plant alternative in the sitting and licensing of a CAL-COAL Plant proposed by Southern California Edison before the California Energy Commission (79-NOI-3). That Intervention resulted in conditioning licensing on an SCE plan to develop 600 megawatts of PV generation by 1993; two megawatts of photovoltaics power plant installed at their Lugo Substation; an example followed by 10 megawatts of solar photovoltaic power plant at Pacific Gas & Electric's Carrisa Plain site. On moving back to Oregon, witnessed and analyzed the engineering mismanagement reliance only on hearsay by the Northwest Power Planning Council in rejecting ***Solar Photovoltaics*** in the draft and final **1991 Power Plan** and in directing BPA's rejection of solar voltaic generation resource proposals. Consequently, the power engineering efforts reviewed here were undertaken to develop regional data and show strategic Solar Voltaic Generation viability and application in the electrical system of the Pacific Northwest.

B. Argument and Conclusions

I. **Solar Voltaic Generation Power Plant technology has arrived** at a stage of technology, knowledge of solar-fuel availability, and power engineering application, enabling large-scale application to the electricity needs of the Region. Power plant engineering, photovoltaic-cell art and pv-generator module development data are adequate and demonstrated to justify expectation of central-station power plants with power costs under the current 2.7¢ per kilowatt-hour BPA firm priority rate. Solar-to-electricity efficiency improvements and cost reductions in worldwide proprietary competition in pv-generator module manufacturing are ongoing; there being no further need for Federal R&D stimulation. There are no outstanding scientific unknowns or question on which to justify further Federal R&D expenditures.

2. **Utility power-engineering is now undertaking large-scale, grid-connected solar photovoltaic generation power plants** beyond the early beginnings at Lugo Substation, Carrisa Plain and the two megawatts solar photovoltaic power plant undertaken in 1982 by the Sacramento Municipal Utility District. The ENRON Corporation, natural-gas exploration and pipelines, proposes to build a 150 MW solar voltaic generation power plant in Nevada (near the Eagle DOE site) supplying power to the local grid, competing with the local 5.8¢ rate with 5.5¢/kWh solar photovoltaic generated electricity. Enron acquired and invested in their SOLAREX Division for a 10 MW per year pv-unit generator modules manufacturing facility. Additionally, on March 3, 1995 the DOE Utility PhotoVoltaic Group program announced receipt of cost-share proposals from utilities and independent power producers for 26 solar photovoltaic generation power plants ranging in size from one to five megawatts, for a total of 9.7 megawatts of capacity, seeking $18 million ($1856/kW) in DOE cost-sharing support. Beyond an obligatory funding of this already successful *pump-priming*, no more of the half-billion dollars earmarked for the UPVG program is needed to allow or encourage the electrical utility industry to site, license and build Solar Voltaic Generation Power Plants as needed in their service areas.

3. **Small capacity, stand-alone, remote and "rooftop" applications are and will abound** as pv-unit generator modules overflow from the mass-production and price competition now started for utility power plants. There are no remaining problems or uncertainties in power-plant, in pv-generator modules nor in reliable forecasting of the solar-fuel or solar-irradiation quantity, quality and availability that require Federal R&D.

4.. **Solar Voltaic Generation Power Plants can be undertaken and incrementally implemented to meet current and regional growth demands for**

strategic amounts of new electricity in the Pacific Northwest; based on regional solar-fuel analyses and on a prototype Solar Voltaic Generation Power Plant with a full-scale mockup of a portion of the plant. The regional solar-fuel data and the prototype SVG Power Plant were specifically developed as a public service to show power engineering and costs of generic Solar Voltaic Generation Power Plant that can be engineered and constructed by any utility distribution and line-service department. Design, prototype mockup, pricing, regional sitting and electrical energy availability have been extensively shown and discussed in the utility power engineering community and before the California Energy Commission. On the other hand, the Northwest Power Planning Council, at their instance also BPA, refuse to even look at or investigate the analyses and solar photovoltaic generation design. Taking the Council to District Court fails to get them to consider a Petition and to examine strategic solar voltaic generation power plants among their energy utilities constituency.

5. **The Region may be unique in this opportunity to use solar voltaic generation in concert with the vast hydroelectric water storage**; accommodating the diurnal and seasonally variable solar power to avoid jeopardizing an adequate, efficient, economic, and reliable power supply. That is to meet the projected shortfalls, to displace energy being withdrawn from the region under the Council's debilitating "Conservation Power Plant" planning, and to replace the hydroelectric generation lost in water-releases to mitigate fisheries impacts. Inroads into the Region's hydroelectric resource, reduce the amount of product to be marketed by BPA and the revenues therefrom, requiring rate increases threatening loss of customers, loss of revenue and further rate pressures. A, January 28, 1994, Petition to revise the 1991 Power Plan to ***Admit: 1500 average Megawatts of Solar Voltaic Generation Power Plant and Demit; 1500 average Megawatts of "Conservation Power Plant"*** threatened the Council's electric conservation program and panicked the

Council into ignoring the obliged statutory investigation and hearing process and resisting in District Court the Petitioner's attempts to have the matter aired in Council *Issue Paper* and Public Hearing processes. The Council acts and speaks more to expanding and consolidation their political power and in stimulating higher electric rates, than in fulfilling their stated mission of ***Protecting our two great Northwest resources: low-cost Electricity and Fish and Wildlife***. There is no need to extend the Council's ambitions by legislating BPA as enforcer of Council policy and whims as presently in the draft BILL to establish the Bonneville Power Administration as a wholly owned government corporation. The ***Pacific Northwest Electric Power Planning and Conservation Act, PL 96-501*** and the ***Council*** have gone beyond their time and need. Both should be rescinded with attendant savings in the BPA budget, stabilizing or reducing regional rates and quit the ongoing regional costs to accommodate electrical conservation. The four State's utility commissions are better positioned in technical and regulatory background to represent the Pacific Northwest State's Governors in BPA matters.

6. **The case for Strategic Solar Voltaic Generation**, its application and benefits for the Pacific Northwest, and a rationale for Budget savings in affected areas are set out in responses to the four questions posed in the announcement of the **Northwest Renewable Forum**. The Forum was convened on February 14, 1995 by the *Northwest Power Planning Council*, the *Renewable Northwest Project*, *Portland General Electric*, the *Bonneville Power Administration*, and *PacifiCorp to* address the theme: ***"Encourage the development of renewable energy resources"*** **(Northwest Power Act)**. The Solar Voltaic Generation responses to the ***FORUM Questions*** are attached as an exhibit to this written testimony.

March 16, 1995 **Respectfully submitted,**

Alfred H. Canada

Alfred H. Canada

Attached ten page Exhibit

SOLAR VOLTAIC GENERATION
Impacts on FORUM Question 1

NORTHWEST
RENEWABLE
FORUM
Building a sustainable market
in a new utility world.

February 14, 1995

What should be our renewable resource priorities ?

Protect our two great Northwest resources: Low-Cost Electricity and Fish and Wildlife; bringing the Council into compliance with their "Mission Statement" in their FY 94 Budget Report.

Reaffirm and ensure the **F.D.R. BPA Promise** of September 1932, **There will exist forever a National yardstick to prevent extortion against the public and to encourage the wider use of that servant of the *American* people --- *Electric Power.***

During the **Council's Watch**, the *Priority Firm Rate* was pushed up by extracurricular costs, engineering gaffes, opportunistic programs and bond-default laid-off against revenues and borrowing authority of the Bonneville Power Administration -- *extortion* against the public. "Historical average priority firm rate:- **1979-81/7.3 mills**, 1981-82/11.1, '82-83/17.9, '83-85/22.8, '85-87/21.6, '87-89/23.2, '89-90/22.6, '91-93/22.7, and 1993-'95/27.0 mills per kilowatt-hour." And, see the Council's " **85 mills** regional avoided cost in year 2000" on page 589 of their '91 Power Plan.

At the Council founding in 1980's, the *cause célèbre* $8.4 billion debt WHOOPS-1 $2.25 billion bond indebtedness, a Council 1/83 advisory said the Region would have all the energy it needed for the next 20 years if WNP 1,2 & 3 were completed, later adding two coal-fired plants. During the 15-year **Council Watch**, Bonneville has contributed $2.0 billion for fish and wildlife and $1.4 billion for energy conservation programs. WHOOPS-2, the Council's 1500 aMW Conservation *Reverse*-Power Plant, seeks to reduce BPA energy sales and increase energy purchases — **bringing BPA perilously close to diminishing returns upon new rate increases to pay for new fish and energy schemes**. Now the Council adds their revised biological opinion (the old one was shot-down by the Court in 35 F.3d 1371) that could sacrifice some hydroelectric power ---*and BPA revenue*. Chief Operations Officer Sue Hickey says, "We have substantially additional fish costs coming at us. Cutting our own costs and risking reliability of the system is not our strategy to deal with those potentially hundred of millions of additional fish costs. **Our sense is that we can't pay.**" (Draft Business Plan Hearing, p 16, ln.14 *et seq*)

Beyond pointing toward a greater dependency on natural-gas for electric generation and space-hearing, the Council's only light at the end of their conservation deprevation tunnel being, "The **PIMBY FUTURE – Power In My BackYard, small distributed generation *(photovolaics)* near the domestic and business loads to avoid the tentacles that spread across vast distances to deliver the central-station power to places it is needed.**" (Carlotta Collette, NWPPC News, 11-12/93)

Hounded, with engineering data, analyses, and showings of solar-fuel availability/reliability since the **Council's 1991 Plan engineering gaffe relegating *Solar Photovoltaics* to least likely *Availalbe Resource (300 mills/kWh)***, a '93 BPA contract study of 1000 MW central-station solar photovoltaic power plants feasibility was redirected to the 2000 time period and 100 MW. And, based on the PVUSA module test-racks power plant (structure and power-apparatus) and on not-yet-commercial 17% fuel-rate pv-modules it is vastly overpriced for any central-station deployment of solar photovoltaics.

The generation resources extension on the obverse, shows candidates for ***renewable resource priorities*** to ***PROTECT OUR LOW-COST ELECTRICITY*** and to ***REINSTATE THE BPA PROMISE.***

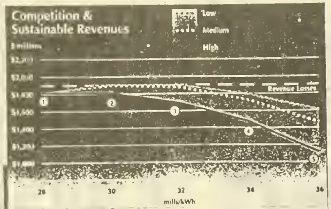
Rev. 2/24/95 Alfred H. Canada

Alfred H. Canada
336 Eric Way
Grants Pass, OR 97526

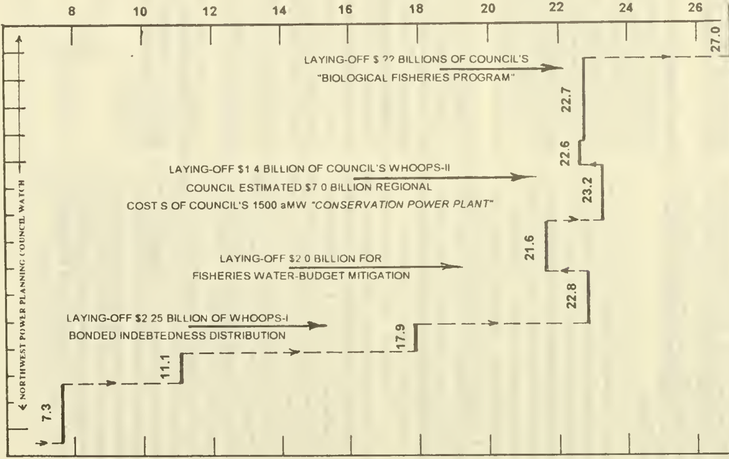
DRIVING BPA RATES TO THE BRINK ON THE COUNCIL'S WATCH

"An additional layer of accountability, negotiated by Council Member Angus Duncan, would require an Annual Program Report explaining how Bonneville intends to carry out the Council's plan regarding acquisition of major resources."

On the content in the draft Bill to establish the Bonneville Power Administration as a wholly-owned government corporation, BPA *Issues Update*, November 1944.



The exact numbers above are still being analyzed but the graph illustrates the idea of diminishing returns with higher rates. This graph shows BPA's initial estimate of total revenue potential for 1997-98 at different BPA prices. As rates rise from 1 to 2, a few customers will look to other sources for a small portion of their load growth, but BPA's revenues still rise. If rates go up another notch 3, more utilities look elsewhere for their power, and some aluminum companies may close. Further rate increases 4 and 5 lead to more customers leaving, more revenues lost. It's a downward spiral that spreads BPA's costs among fewer and fewer customers and could dramatically affect BPA's ability to carry out its mission. When BPA first did this analysis in November 1994, the sustainable revenue curve approximated the *medium* revenue line. Today, just three months later, sustainable revenues are probably closer to the *high* line.



"85 MILL REGIONAL AVOIDED COST IN YEAR 2000", p 589, 1991 POWER PLAN

Adapted from. BPA State of the Agency, January 19
Alfred H Canada, Grants Pass, OR 3 15 95

GENERATION RESOURCES EXTENSION . . . .

From NWPPC, Table 1 Combined-cycle Combustion Turbine; Planning Assumptions

Minutes; Northwest Power Planning Council, *Generating Resources Advisory Committee Meeting*, 12/20/94

POWER PLANTS	NWPPC's C-CGT	NWPPC's "Conservation Power-Plant"	ENRON-Nevada. PV *h*	NWPPC's PV-100 circa 2000	S.V.G.
Installed Nameplate Capacity, MW inc	—	4687 *d*	—	—	1053
Gross Maximum Capacity, MW gmc	230	—	150	—	1000
Gross Dependable Capacity, MW gdc	224	—	—	101.5	980
Net Heat-Rate, Btu/kWh (gmc)	7200	—	—	20,076 *i*	35,940 *j*
Net Heat-Rate, Btu/kWh (gdc)	7350	—	—	—	36,673
CO_2 Added / Subtracted, Tons/aMW	+1394	+1394	0	0	- 30 *k*
Plant Total, Tons/Yr	+281,030	+8,364,000	0	0	- 6174
Effective Availability/Capacity Factor	90%	32% *e*	20%	21%	20%
Project Development, Months	24	187 aMW/Yr	12	24	12
Project Construction, Months	24	96 *f*	Incremental	69	Incremental *l*
Plant Power Density, MW inc / mi^2	—	—	—	118	116
Service Life, Years	30	1	—	30	100
Construction Cost, $ per kW inc	$651 *a*	$1493	—	$3450	$160 *m*
Fixed Fuel Expense, $/kw-yr	$51.63 (5.89 mill/kWh)				
Fuel Cost, $/mmBtu / ¢/kWh	$1.54 / 1.13 *b*	0	0	0	1.5-2.0¢ *n*
Energy Cost, ¢/kWh	2.2 - 3.1 - 3.9¢ c	13.5¢ *g*	5.5¢	—	2-3¢

a/ "Overnight" cost, excludes escalation and interest during construction.

b/ Natural gas futures, WSJ 1/24/95, $1.389/million Btu on 1/95 and $1 84 on 1/96, then (7350 heat-rate/1,000,000)($1.389) = 1.02¢/kWh fuel, ...)($1.84) = 2 35¢/kWh fuel cost in 1996.

c/ NWPPC low, medium, high gas price levelized lifecycle costs of electricity.

d/ Installed capacity of C-CGTs to produce the electricity not used in the eight years leading to the Council's, "Between now and the year 2000, we are asking the region to secure at least 1500 aMW of conservation Expected cost roughly $7.0 billion by the year 2000." (per '91 PLAN). A 4687 MW alternative at $7.0 billiom $1493/kW.

e/ At the overall gross annual capacity factor of the hydroelectric generation.

f/ To acquire 1500 aMW of annual energy in eight years, ninety-six months.

g/ Assuming a 12-month life average electric non-use conservation non-use; NWPPC's $7.0 B for the energy saved in straight-line eight years to 1500 aMW, 13 billion kWh not used costing 13.5¢/kWh.

h) Enron Inc.and Solarex Div. announce a 150 MW photovoltaic plant and manufacturing facility producing 10 MW of PV Modules per year selling power near Eargle, NV at 55 mills versus the present local rate of 58 mills/kWh.

i/ Based on fuel-rate of a 17% efficient photovoltaic unit generator modules, currently beyond commercial state of the art. Fuel-rate, kilowatts of electrical output divided by kilowatts of solar irradiation input, expressed as heat-rate, Btu/kWh in an hour period ---1.0 kWh or 3413 Btu, 3413/0.17.

j/ Based on current commercial 10% fuel-rate photovoltaic unit generator modules and the power-apparatus and operating out-of-specifications losses.

k/ CO_2 based on natural-gas combustion-gas-turbine emission rates. For SVG, Solar Voltaic Generation, in collocated ***crops and kilowatts*** on tilled land using the carbon dioxide take-up for typical cultivated land.

l/ Independent power producer, manufacturer, or BPA customer owned photovoltaic unit generator modules installed as received at the SVG Power Plant (structure and power-apparatus) and immediately producing energy and return-on-module-cost.

m/ Parting out the conduit, cable, highway-stakes, power-apparatus, SCADA, and land at $3000/Acre from retail sources and utility distribution engineering estimators.

n/ A kilowatt of installed nameplate capacity rating of SVG Unit Generator at a 20% **gross annual fuel-determined capacity factor** can produce (1.0)(0.20)(8760 hrs) = 1752 kWh; at 2¢/kWh is a gross annual return on a **factory module cost** of $500/kW of 7% for the photovoltaic module owner.

SOLAR VOLTAIC GENERATION

Impacts on FORUM Question 2

NORTHWEST RENEWABLE FORUM
Building a sustainable market in a new utility world.

February 14, 1995

How much electricity can renewable resources provide for the PACIFIC NORTHWEST ?

Solar-Fuel, energy from the solar-fusion source in numerous ***distributed generation power plant*** locations in the Pacific Northwest, converted to electricity in the ***solar photovoltaic process,*** can provide amounts of electricity ***equaling and more the 20,000 aMW*** annually acquired, transmitted and distributed in the BPA System.

Opportune for our Region, strategic Solar Voltaic Generation and extensive Hydroelectric Generation provide a synergy, wherein the diurnal and seasonal variations in solar-fueled electricity availability can be smoothed to the demand by storage and release of water-generation. Conversely, hydroelectric losses occasioned by the Council's fish and conservation programs or low water-months, can be filled by solar-fueled power.

SVG ENERGY FROM A 1053 MW-INC, 980 MW-GDC SOLAR VOLTAIC GENERATION INTERFACE SUBSTATION

FROM 1980 DOE/JPL HANDBOOK OF SITE-WEATHER CORRECTED HOURLY SOLAR-FUEL PROJECTION DATA THAT COULD BE SUPPLIED BY DITTMER CONTROL CENTER COMPUTER FOR SVG PLANT OPERATING PLANS AND GENERATION DISPATCH

aMW, average MEGAWATT EQUALS ONE MEGAWATT-YEAR OR 8,760,000 KILOWATT-HOURS FDCF, FUEL DEPENDENT CAPACITY FACTOR. GACF, GROSS ANNUAL CAPACITY FACTOR.

☐ SITE DATA CONFIRMED WITH BPA/UNIVERSITY OF OREGON MEASUREMENTS. STANDARD-DEVIATIONS IN THE ORDER OF SITES. 0.058, 0.068, 0.110, 0.051. Also Sacramento Municipal Utility District PV-1 actual x 1000 for 1981.

LOCATION	ARRAY TILT	ANNUAL INSULATION	FUEL-DEPENDENT CAPACITY FACTOR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
BOISE, ID	35.°	1985.5 kWh/m²	22.7%	8.35	12.81	17.10	20.82	23.58	24 54	27.13	25.49	23.85	18.54	11.72	8 38	222.46
LEWISTON, ID	45 °	1568.0 kWh/m²	17.9%	5.95	9 22	13 30	15 86	18.20	19 06	23 21	22 05	20.01	14 49	7 99	5 68	175 42
POCATELLO, ID	35 °	2037.6 kWh/m²	23.3%	9.41	13.19	17.96	20 85	23.52	24 61	26.86	25 87	24.16	19.80	12 95	9.17	228 34
BILLINGS, MT	35 °	1799.5 kWh/m²	20.5%	9.03	11 68	15.72	17.35	19.97	21.94	25 03	23.70	20.17	16 26	10 93	8.73	200 9
CUT BANK, MT	40 °	1716.3 kWh/m²	19.6%	8.24	11 27	15.52	17.12	19 61	20 42	23 93	22 50	19 27	15 45	10 48	7 93	192 08
DILLON, MT	35 °	1867.0 kWh/m²	21.3%	9.83	13.09	17 07	18 74	20.74	21 56	25.06	23.80	20.84	18 83	11.77	9 28	208 74
GLASGOW, MT	40 °	1674.8 kWh/m²	19.1%	7.68	10.81	15.02	17 08	18 90	20.33	22.81	21.96	18 93	15 40	10 20	7 75	187 18
GREAT FALLS, MT	40 °	1726.8 kWh/m²	19.7%	8.30	11 80	15 95	16.97	19 01	20 81	24.14	22 68	19 35	18.12	10.41	7 45	193 06
HELENA, MT	35 °	1711.2 kWh/m²	18.5%	7.72	10.98	15.37	17.19	19.70	20.86	24.88	22 89	19 88	15.51	10.29	7.62	193.06
LEWISTON, MT	35 °	1887.8 kWh/m²	19.3%	7.84	10.70	15.10	16 83	19 05	20.96	24.30	22.46	18 96	15.13	9 92	7.70	189 14
MILES CITY, MT	35 °	1773.3 kWh/m²	20.2%	8 52	11.51	15 75	17 68	19 86	21.70	24.14	23 28	19.90	15.99	10 93	8.39	197 96
MISSOULA, MT	35 °	1537.4 kWh/m²	17.5%	5.84	8 38	12.76	15.78	18 69	19 58	24 60	22.09	18.59	13 08	7 57	4 92	171 5
ASTORIA, OR	35 °	1300.0 kWh/m²	14 8%	5 83	7 67	10.93	14.12	16 70	16 36	16.19	17 07	15 64	10 96	6 79	4 51	145 04
☐ BURNS, OR	35 °	1835.5 kWh/m²	20.9%	8.45	11.71	15.24	18 57	21 14	22 84	25 39	23.96	21.89	18 53	10 83	8 18	204 82
MEDFORD, OR	30 °	1729.4 kWh/m²	18.7 %	8.11	10.29	14 19	18.50	21.26	23 08	25.94	24 38	20 85	14 57	8 15	5 33	193 06
☐ NORTH BEND, OR	30 °	1581.4 kWh/m²	18.0 %	6.99	9 91	13.27	17 03	19 51	20 32	22.15	20 42	17.85	13 20	8 85	6 58	176 4
PENDELTON, OR	35 °	1649.0 kWh/m²	18.8 %	5 67	8 90	13.53	17 09	20 08	21.61	25.15	23.35	20 66	14 61	7 88	5 27	184 24
☐ PORTLAND, OR	30 °	1381.9 kWh/m²	15.8 %	5.38	7 83	11.28	14.89	17.69	18 34	21 79	19 43	15.95	10 73	6 41	4 94	154 84
☐ REDMOND, OR	35 °	1837.7 kWh/m²	21.0 %	8 69	11.58	15 46	19.18	21.60	22.89	25 46	24.01	21 59	15 97	10 59	8 31	205 8
SALEM, OR	30 °	1461 3 kWh/m²	16 7 %	5.76	8 14	11 62	15 60	16 43	16 04	22 82	20 57	17 51	11 41	6 74	5 25	163 66
OLYMPIA, WA	30 °	1296.5 kWh/m²	14 8 %	4 66	6 91	10 65	14 38	17 42	17 59	20.55	18 00	15.28	9 42	5 61	4 25	145 04
SEA-TAC, WA	30 °	1365.8 kWh/m²	15 6 %	4.60	6.84	10.79	14 88	18 38	18 79	24.34	18.96	15 22	9.91	5.65	4 09	152 88
SPOKANE, WA	35 °	1629.3 kWh/m²	18 6 %	5.34	9 15	13 85	17.29	20 31	21.27	25.15	23 11	20.18	13 95	7 49	4 80	182 28
WHIDBEY ISLAND, WA	35 °	1392.0 kWh/m²	15.9 %	5.55	7 86	12 05	15 53	18 66	16.62	21.08	18 69	16.04	10 38	6.64	4 39	155 82
YAKIMA, WA	35 °	1703.9 kWh/m²	19.4 %	6.31	10.04	14 86	18 39	21.06	21 92	24.66	23.25	20.60	14 56	8 28	5 57	190 12
DAGGETT, CA	30 °	2358.1 kWh/m²	26.9 %	15.02	17.72	21.88	24 82	25 88	26 68	25 95	26.11	25.13	21 76	17 61	14 83	263 62
SACRAMENTO, CA	30 °	2097.2 kWh/m²	23.9 %	9 15	12 88	11.32	22.34	24 98	26 83	27.59	26.74	24.69	19 48	12 81	8 89	234 7
☐ SMUD PV-1 1981-Actual, 1.175 MW-inc x 1000	0° E-W Tracking		(19.4% GACF)	7.62	7.07	7.08	22.05	22.54	24 53	30 32	27.81	27.81	10 40	8 96	6 02	194 0

BPA NON-FIRM HYDROPOWER ENERGY AVAILABILITY, 50% PROBABILITY

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4200	5750	7400	6000	8750	8300	8100	2300	0	300	1250	1750

With zero-fuel-cost, solar-fueled energy cost comparable to hydroelectric and with little environmental impact — being on tilled-land in coproduction of ***Crops & Kilowatts*** even taking up ***global-warming*** CO_2 —, the solar/hydro marriage in the Northwest will provide continuing ***Energy Decency —Abundant, Affordable, Amicable in the Environment.***

Solar irradiation or Solar-Fuel quantity, quality and availability is readily predictable and dispatchable for any future hour using long-standing atmospheric transmission and scattering models based on predicted local weather-atmospheric conditions for any location. Solar irradiation forecasting based on weather, subsequently confirmed by actual values to refine the local atmospheric transmission/scattering model, has a long history in applications from county ag-agents and irrigation districts predicting agronomy aspiration to analyses of background and range for military optical and infrared detection systems. Thus, a Table of ***How much electricity*** from 25-locations in the region shows the monthly and annual electricity that a 1000 Megawatt-gross maximum capacity rated Solar Voltaic Generation Power Plant can deliver into the BPA system. These are based on hourly projections accumulated into the average-day each month using the weather dependent computer models in the *1980 DOE/JPL Handbook.* The data closely matches predictions taken from recent *solar-fuel handbooks* done for DOE by SANDIA and NREL. More significant, these data are closely confirmed in standard deviations in the ratios of *Handbook* predicted versus *University of Oregon* site measurements. Further confidence is suggested in comparisons of the 1000 MW SVG Plant if located at Sacramento Municipal Utility District or at the "hot-spot" test grounds for SCE's SOLAR; although it must be noted that the DOE/JPL model was not adjusted for the local *winter-tuley-fog* evident in the 1991 actual data from SMUD PV-1.

Operational atmospheric MODELS and adjustments based on actual measurements today can accommodate ***predictable, dispatchable svg-generation*** for daily, weekly, annually ***Operating Plans*** from the BPA *Dittmer Control Center.* For example, the predictable output of several 1000 MW SVG Plants can be dispatched into the ***non-firm hydropower energy*** predictable availabilities to ***firm the non-firm energy.*** The data are shown for a **south-facing, fixed-tilt array of photovoltaic unit generator modules in E-W rows on 4 meter centers** --- allowing a cultivated strip between SVG rows. The optimum tilt-angles and data (angles being somewhat less than the site N-longitude) are shown for each site with the annual insolation and the **Fuel-Dependent Gross Annual Capacity Factor** attainable with any pv-module --- before electrical losses in plant power-apparatus and operation out-of-specs in temperature rise or degraded capacity modules. Standard rating testing for pv-module capacity is 1.0 kW/m^2 as is the peak irradiation at summer noon for most sites in the Region. If the pv-unit generators are mounted on one- or two-axes sun-tracking mounts, about a third higher fuel-determined annual capacity factor applies in many clear-sky situations — albeit with the plant costs of more E-W spacing between pv-modules and the operating expense of power and maintenance of the tracker. Not shown in the Table, the Model adjusted with site specific weather shows the hourly mix of direct and diffuse solar-irradiation.

Capacity/energy management for all hydro and renewables supplies in the system is sophisticate and adequate at BPA to merge large SVG and Hydro capacity and energy, costing of every acre-foot of water from snow-pack to the sea. For the past half-century, analog or computer system simulations in utilities allow marginal-costing of hourly changes in all of the potential energy from water and energy brought into the system — obviating any need for the layman *Capacity Issues and Planning* the Council is now attempting in order to takeover control of water-shed and energy management.

How much solar-fueled electricity we acquire is based on better spending of a fraction of the $7.0 billion Council estimated cost of their "Conservation Power Plant" or of a portion of the $1.4 billion revenues and borrowing-authority that BPA is required to put into buying the Council's electricity conservation. To generate instead of non-generate the Council's 1500 aMW annually in year 2000 requires construction of seven and one-third SVG Plant, interface subsystems, distributed in 21% F-DCF locations on 60 section of tilled *crops & kilowatts* land; 7,674,927 kW-installed nameplate capacity of energy from IPP owned pv-modules, at $160/kW SVG Plant (land, structure and power-apparatus) or $1.2 billion for a new Bureau of Reclamation power plant.

Alfred H. Canada, Grants Pass, Oregon

SOLAR VOLTAIC GENERATION
Impacts on
FORUM Question 3

NORTHWEST RENEWABLE FORUM
Building a sustainable market in a new utility world.

February 14, 1995

What are the challenges to their development ?

"I've got *solar voltaic generation* by the throat !"

Chairman Bottiger: " There is nothing to prevent us reviewing Mr. Canada's information *(solar voltaic generation petition)* in the formation of the 1996 Plan. In fact **it probably would be more likely to receive consideration than if it were before us in amending the '91 plan**. Is there any discussion on the Chairman's motion to advise Mr. Canada **we've rejected his petition?** Do I need a record vote? Any objection (background chatter and laughter) **I've got him by the throat** *[allegedly, Angus Duncan's voice?]*. None appearing, please advise Mr. Canada that he would be more than welcome to participate in the 1996 plan but we're not going to open the 1991 plan." (q.v., Tape Transcript, *Council Business Session -- La Grand, OR , 3 p.m., August 11, 1994)*

The above brush-off seventy-five days beyond the statutory 120-days deadline for required ***Investigation*** and ***Public Hearing*** on petitions;
no Council Meeting agenda item,
no Issue Paper,
no investigation, and
no publicity to the Region.

and **. . even in today's FORUM the Council will continue the throttling of bulk or strategic levels of electricity from the Solar Voltaic Generation Resource.**

Immediately following on the Council's gaffe in relegating *Solar Photovoltaic* to last place, out-of-consideration in the Draft 1991 Power Plan, based on hearsay allegedly digested from a 2-day meeting with a *Solar Advisory Panel*, starting in February 1991, analyses, data, written-comment on the Draft and conceptual engineering designs for solar photovoltaic generation power plants were submitted to the Council --- and rudely ignored. Finally, in an attempt to get-their-attention and force an open forum through Issue Papers, Comments from utility and electric power interests, and Public Hearing, the SVG Petition of January 27, 1994, **To Admit: 1500 aMW of Solar Voltaic Generation Power Plant and to Demit: 1500 aMW of "Conservation Power Plant in the 1991 Power Plan.**

This, entitled by statute, petition and process was brushed off by our Northwest Power Planning Council, even upon CANADA v. NWPPC to require statutory action (Civil Action 94-323-FR, US District Court); that too ducked by the Council's contention that they can only be challenged in the 9th Circuit Court of Appeals.

Scoping the New Power Plan-Issue Paper 94-21, declares, **"The technical analysis that is the foundation of the plan will be carried out by staff with the involvement of scientific and technical advisory committees --- the Council will not routinely release issue papers on matters of largely technical interest."** Beyond today's meeting, there appears to be no means beyond taking 'em to Circuit Court to involve the considerable utility-power-engineering expertise of the Region — in contributing, analyzing or questioning the ***I've got solar voltaic generation by the throat*** staff before the new Plan surprises of early 1996.

THE MISSION OF THE COUNCIL ?
Protect the great low-cost electricity resource
---- or ----
Acquire political clout over all of the
Region's electricity ?

1. Council Member Duncan: " Its a curious feature of the Council that no one is really obliged to pay any attention to us at all. With the exception of some limited statutory authority over BPA power purchases, large single sources; the Council's authority depends largely on the **quality of its underlying analyses**, on the **persuasiveness of its policies**, the **credibility of its process**. And, **this statutory weakness** has a paradoxical bent to it, because we have to leverage and persuade rather than order and regulate, we are all but forced to look deep and look long at underlying causes and extended consequences." (*The Shaping of a Sustainable Pacific Northwest, SUNWORKS '93: K 726 Angus Duncan, Audio Productions, 1-800-224-7876, October 15, 1993)*

2. Council Member Hallock: " Well, now, Mr. Canada, your (Petition); Review and recommend discontinuation of the Section 6(c) statutory overview and authority over major resource acquisitions by the Bonneville Power Administration or pending Corporation. Why would you have us, the Power Council, relinquish our one chance to oversee, monitor, Bonneville's acquisition of new generation? " (Printed Transcript, *Council Working Session, 4 p.m., June 21, 1994)*

3. " Power sales contracts could simply require utilities that purchase power from the federal base system and that are proposing to acquire resources independently from Bonneville, develop integrated resource plans **consistent with the regional power plan.** " (Independent Resource Acquisition; Implications and Options for the Region, Northwest Power Planning Council ISSUE PAPER 94-5, January 28, 1994)

4. "Bonneville would become a government corporation headed by an Administrator appointed by the Secretary of Energy. An additional layer of accountability, negotiated by Council Member Angus Duncan, would require an Annual Program Report **explaining how Bonneville intends to carry out the Council's plans regarding acquisition of major resources.**" (*Hearing Due On Government Corporation Status,* BPA *Issue Update, November 1994)*

5. BPA is already hobbled by the Council's, **statutory authority over power purchases** that Angus Duncan would now extend to all potential producers of power larger the **Power In My Back-Yard (PIMBY).** BPA has rejected formal Proposals for strategic Solar Voltaic Generation in the system:

"BPA is only interested in taking options on resources that are cost-effective, reliable, environmentally acceptable, and consistent with the objectives of the Northwest Power Planning Council's 1991 Power Plan." (Request for Energy Options: The Resource Contingency Program, March 1992)

"BPA agrees with the Council that solar has uncertainties which preclude it from being considered a reliable, cost-effective resource at this time. For this reason *solar voltaic generation* was not included in our request for energy options." (Rejection of Solar Voltaic Generation Energy Option Proposal in the March 1992 Request for Energy Options, BPA, June 30, 1992)

THROTTLING STRATEGIC
SOLAR VOLTAIC GENERATION
IS THE PIVOTAL CHALLENGE TO
REGIONAL RENEWABLE RESOURCES
ENERGY DECENCY —
ABUNDANT
AFFORDABLE
AMICABLE IN THE ENVIRONMENT
ATTAINABLE

Al Canada

Alfred H. Canada, Grants Pass, Oregon

SOLAR VOLTAIC GENERATION

Impacts on

FORUM Question 4

NORTHWEST
RENEWABLE
FORUM
Building a sustainable market
in a new utility world.

February 14, 1995

How can we create and sustain a market for renewable electricity?

THE SOLAR VOLTAIC GENERATION RESOURCE

at less than 20 mills/kWh delivered into our BPA System

DISTRIBUTED 0.2 to 2000 MEGAWATTS POWER PLANTS

50 MW-inc per Square Kilometer, 129 MW-inc per Square

$ 160/kW-inc Power Plant (Land, Structure, Power-Apparatus)

$ 500 - $750/kW Photovoltaic Unit Generator Plug-In Modules, IPP, Manufacturer or Billing-Credit Customer Owned, Selling Energy at the Bureau, Corps, DSI or Utility Owned and Operated SVG Plant at 20 mills/kWh

Power Plant an Interface Substation . . .

Solar Voltaic Generation Power Plant construction is shown in full-scale mock-up with a single fixed-tilt, flat-plate Unit Generator Module plugged in. It is suggested as a generic design for utilities; a design that can be implemented by any electrical-utility distribution engineering department and line-service yard. The Power Plant structure consists of a pair of 2½" conduits supported on 2"x3" highway stakes. One of the two conduits carries a combined 480 V, 480 Hz low-voltage bus and scada coax- or fiberop-wire, with secondary halves of two-part isolation transformers (100/480 V) in power/scada couplers at one meter intervals along the low-voltage bus. They receive the primary half in the cam-lock-pipe-coupler on the single leg of the Solar Voltaic Generator Module. Service-car rails hung on the highway stakes, one side 3rd-rail powered from the low voltage bus, provide for scada-controlled, array-powered automated servicing of the SVG Plant array and for the *Crops & Kilowatts* automated tracked-farming of the 2.8 m tilled-land strip between the 1.2 m spaced conduits at the 4 m array row spacing. The eighth harmonic of the 60 Hz plant output is selected for the line-commutated plug-in pv-modules; for small dimension and cost in transformers and circuit components, and for reduction of disparate photovoltaic cell technology Module's output harmonic and switching transients getting to the SVG Plant busbar. Price out a 5 meter section of conduits, cable, highway-stakes, prorated land and 200kVA power-apparatus, etc., at less than $160 for that kilowatt 5-meter long section.

Power /SCADA Plug-In Coupler . . .

Voltaic photon conversion SVG Modules (e.g., 0.2 kW-installed nameplate capacity in 1x2 m frame) are plugged-in along the low-voltage bus. At 1000 m intervals along the Power Plant Structure, 200 kVA power-apparatus closures span the pair of conduits, with a 480/12500 V, 480 Hz transformer and a frequency divider bridge to produce ø1 of the 60 Hz output to the high-voltage plant busbar 2½" conduit (ø2 & ø3 in adjacent rows) with frequency, phase and VAR scada controlled. Optimizing energy handling efficiency with the diurnal variations in Solar-Fuel power levels, some of the redundant 200 kVA units are on- or off-line as needed.

Solar Voltaic Unit Generator Modules . . .

Generator modules from any manufacturer, state-of-the-art future era, and capacity rating improvement may be utilized, that meet the physical, electrical output and supervisory control & data acquisition protocol at the standard Power-SCADA Coupler. The photovoltaic module developer/manufacturer needs to, a) integrate the spectral and goniometric optical impedance match at the fuel-voltaic interface, b) improve efficiency (fuel-rate) of the photon/electric conversion materials, c) achieve maximize power point tracking dc to ac line-commutated output at the power/scada coupler, and d) conform to the SVG unit-generator frame and power/scada coupler specifications; all in order to competitively offer, install or upgrade competitive nameplate capacity and kilowatt-hours of product at a plant site solar-fuel availability, quantity and quality. Contemporary SVG Modules are capacity-rated with sun-simulating one kilowatt per square meter sources; approximating the noon-summer sunshine irradiation for most Northwest sites. Thus, the *Fuel-Dependent Gross Annual Capacity Factor* or *Equivalent Availability Factor* determined for any Plant sitting; approximates the plant *gross annual capacity* and *effective availability factors* (see, IEEE Std. 762) allowing for power-apparatus losses before power-apparatus and out-of-spec operating losses. For example a thousand megawatt SVG Power Plant would have these electrical characteristics:

1053 MW-inc, installed nameplate capacity in plug-in SVG unit generator modules (5,265,000),

1000 MW-gmc, gross maximum capacity after power handling losses, and

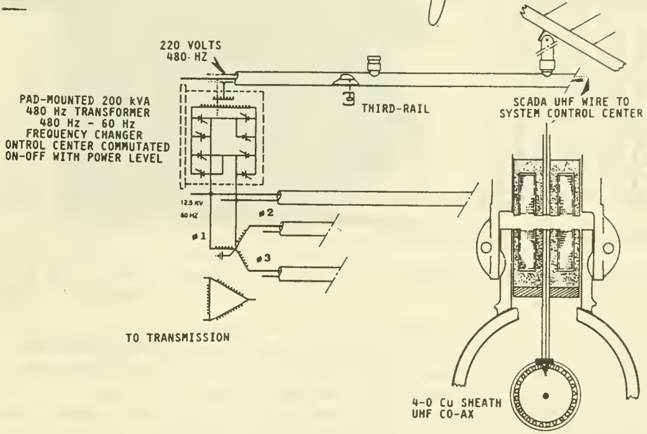
980 MW-gdc, gross dependable capacity after losses occasioned by operating out of module specifications, e.g. temperature-rise, soiled module optical surfaces, or ambient specs

Energy-Option Acquisitions . . .

Spcifying the standard interface, bulk energy purchasers including BPA could solicit *Energy Offers* from manufacturers. As current PV-Module ***prices*** in few kilowatt lots approach $1000/kW for thin-film pv-materials electron-devices, expect the a manufacturer's ***factory-cost*** to be under $500/kW-inc. Then for a fixed-tilt, flat-plate-array *21% F-DCF* plant site, an ***energy-offer solicitation*** in few megawatt lots should target a delivered energy cost under 20 mills. Buying all energy generated at a 21% F-DCF plant site would earn the offeror a 7.4% gross annual return on his $500/kW modules — and bring offers for delivered energy cost under 20 mills from the many pv-module manufacturers, worldwide.

Alfred H. Canada

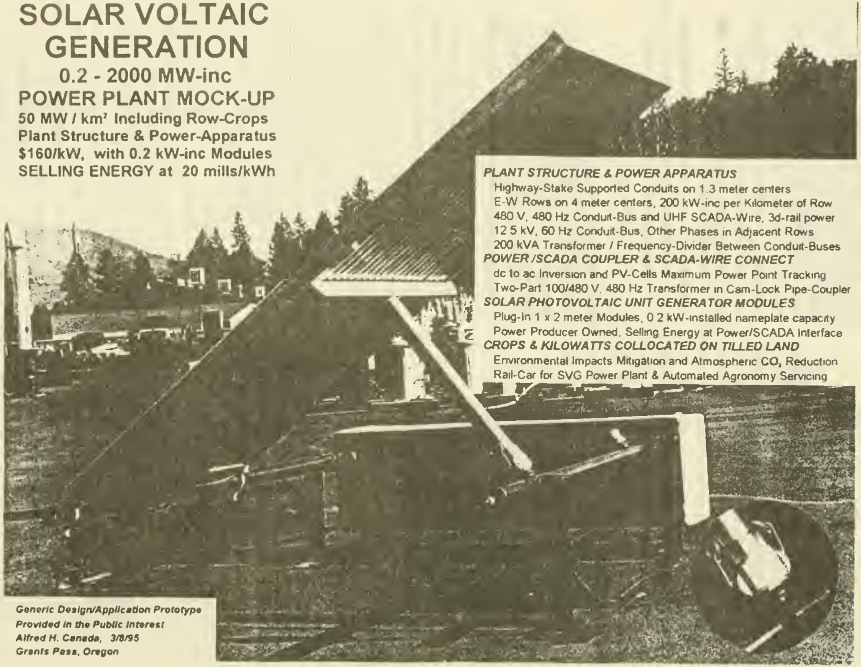
Alfred H. Canada, Granst Pass, Oregon



SOLAR VOLTAIC GENERATION

0.2 - 2000 MW-inc
POWER PLANT MOCK-UP

50 MW / km² Including Row-Crops
Plant Structure & Power-Apparatus
$160/kW, with 0.2 kW-inc Modules
SELLING ENERGY at 20 mills/kWh



PLANT STRUCTURE & POWER APPARATUS
Highway-Stake Supported Conduits on 1.3 meter centers
E-W Rows on 4 meter centers, 200 kW-inc per Kilometer of Row
480 V, 480 Hz Conduit-Bus and UHF SCADA-Wire, 3d-rail power
12.5 kV, 60 Hz Conduit-Bus, Other Phases in Adjacent Rows
200 kVA Transformer / Frequency-Divider Between Conduit-Buses

POWER /SCADA COUPLER & SCADA-WIRE CONNECT
dc to ac Inversion and PV-Cells Maximum Power Point Tracking
Two-Part 100/480 V, 480 Hz Transformer in Cam-Lock Pipe-Coupler

SOLAR PHOTOVOLTAIC UNIT GENERATOR MODULES
Plug-in 1 x 2 meter Modules, 0.2 kW-installed nameplate capacity
Power Producer Owned, Selling Energy at Power/SCADA Interface

CROPS & KILOWATTS COLLOCATED ON TILLED LAND
Environmental Impacts Mitigation and Atmospheric CO_2 Reduction
Rail-Car for SVG Power Plant & Automated Agronomy Servicing

Generic Design/Application Prototype
Provided in the Public Interest
Alfred H. Canada, 3/8/95
Grants Pass, Oregon

WEDNESDAY, MARCH 29, 1995

CALIFORNIA PROJECTS

WITNESSES

HON. JERRY LEWIS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. GEORGE E. BROWN, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. WALLY HERGER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. JANE HARMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. RANDY "DUKE" CUNNINGHAM, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. CALVIN M. DOOLEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. GEORGE MILLER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. BRIAN P. BILBRAY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. KEN CALVERT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. STEPHEN HORN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. NANCY PELOSI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. RICHARD W. POMBO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. ZOE LOFGREN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. ELTON GALLEGLY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. DANA ROHRABACHER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. SONNY BONO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. LYNN C. WOOLSEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. GEORGE P. RADANOVICH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA
HON. SAM FARR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. BEVILL. The meeting will come to order.

We have got so many meetings going here, that I have been told to get this meeting started. And of course we will just get started. And my good friend and colleague, Jerry Lewis, is here, who he is one of those cardinals now you have heard of. We are proud of him. Jerry does a great job. And he, too, has to get to his committee and preside. And, Jerry, we will be glad to keep you as long as we can.

Mr. LEWIS. Chairman Bevill, this would have been the first meeting I attended of this committee where you weren't the Chairman.

Mr. BEVILL. That is the first time I have sat in this chair this year.

Mr. LEWIS. I want you to know I am still a sparrow, but on the other hand, I am going to conference the Senate to protect some of our projects over there. I am not going to give any testimony except to say the work you have already done in the San Bernardino-Riverside County saved $330 million in this last series of floods in Southern California.

If you will just continue that good work, we have colleagues here from San Bernardino and Riverside County who are going to express the details of these very important projects we have before you, and I will submit my testimony for the record.

Thank you very much.

Mr. BEVILL. Jerry, you look out for Alabama, too.

Mr. LEWIS. I will be glad to do that.

[The statement of Mr. Lewis follows:]

JERRY LEWIS
40TH DISTRICT CALIFORNIA

COMMITTEES
APPROPRIATIONS
SUBCOMMITTEES
VA, HUD AND INDEPENDENT AGENCIES (CHAIRMAN)
NATIONAL SECURITY
PERMANENT SELECT COMMITTEE ON INTELLIGENCE

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House of Representatives
Washington, DC 20515-0540

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STATEMENT OF CONGRESSMAN JERRY LEWIS
before the
HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

Mr. Chairman and Members of the Subcommittee:

As always, it is a pleasure to appear before you and share with you a number of southern California projects which I strongly support. First, I would like to thank the Subcommittee for their fine work which has attributed to the continued progress of the Santa Ana Mainstem Project. I urge the Subcommittee to maintain its strong support of this project and its related features and to continue working on a series of projects critical to the future of southern California's development. Second, I would like to take a minute to introduce San Bernardino County's Transportation and Flood Control Director - Ken Miller. Third, as a result of the work already completed on the Santa Ana project, we were able to prevent an additional $329 million in damages to southern California during the January floods.

Santa Ana Mainstem - I am delighted to report that we continue to make a great deal of progress on the Santa Ana project. The Outlet Works/Diversion Tunnel contract has been completed at Seven Oaks Dam. Construction on the embankment and spillway portion on Seven Dam is also underway. The estimated budget requirement for FY 1996 is $70,249,000, which is also reflected in the President's budget request. This includes continued work on the Seven Oaks Dam, San Timoteo Creek, Prado Dam, Oak Street Drain, and the Lower Santa Ana River. I would like to reiterate my strong support for the San Timoteo Channel of the Santa Ana. The contract has been awarded for Reach One of this project and construction is now underway. The funding need for the San Timoteo Channel for FY 1996 is $5 million.

The Subcommittee's continued support of funding for the Santa Ana Mainstem project will enable the ongoing design and construction of vital flood protection work for the millions of people who reside in San Bernardino, Riverside and Orange County. Furthermore, the project will safeguard the billions of dollars of property located in this region.

Mission Zanja Creek - As a result of the reconnaissance study completed in 1994, two features of this project appear to be economically justified. The reconnaissance study indicated that the most efficient program to expedite this project is the Section 205 Small Flood Control Project Continuing Authorities Program. I would like to request continued funding in FY 1996 of $1 million to complete plans and specifications and initiate construction on the inlet expansion plan.

Seven Oaks Water Conservation Study - As a result of the completed reconnaissance study, a determination was made to pursue water conservation for the Seven Oaks Dam. I would like to express my support for $265,000 to conduct a feasibility study to assess physical, fiscal, environmental and public impacts of a water conservation program for the Seven Oaks Dam.

Mojave River Floodplain Management - On August 30, 1994, the San Bernardino County Flood Control District (District) and the Corps entered into an agreement to develop a comprehensive floodplain maintenance plan for approximately 65 miles of the Mojave River. As part of the agreement, the District will prepare 65 miles of topographic mapping. The funding need in FY 1996 for this mapping is $35,000.

San Antonio Creek/San Sevaine Creek/Norco Bluffs - I would like to urge the Subcommittee to support these three projects which are no longer in my Congressional district but are essential to the region.

San Antonio Creek - $150,000 -complete reconnaissance study.
$200,000 -initiate feasibility study.

San Sevaine Creek - $250,000 -initiate Federal participation. (Bureau of Reclamation Project)

Norco Bluffs - $375,000 - continue feasibility study.

Again, Mr. Chairman and Members of the Subcommittee, thank you for affording me the opportunity to appear before you to present these requests. I know how difficult the next several years will be for each of the Appropriations Subcommittees as we move down a path that takes us toward a balanced budget. I also know that the task of addressing flood control needs has been made more difficult with the Corps attempt to phase-out the federal commitment to local flood protection efforts. I am aware of the competing interests your subcommittee must balance. However, I urge you to keep these projects in mind when making your difficult funding decisions.

Mr. BEVILL. Well, this is a great day. I always look forward to this California group. And we are just pleased to have you and we will just get moving here.

I know every one of you are very busy, and we will—the dean, my dean used to say, George, before I became dean, he used to say, you know, I don't like that title, dean. It means you might leave pretty soon, you know. And both ways have to do with a box. You might leave because of the ballot box or you might leave in a box. That is not a good way to start out the hearing.

George is still a young man, George is still a young man, he is going to be around a long time. I am delighted to recognize my friend and colleague, the dean of the delegation, Mr. George Brown.

Mr. BROWN. You are very kind, Mr. Chairman. I appreciate it very much. I will recognize one of the characteristics of deanship is that you no longer are as competent as you used to be, so I will be brief instead of competent, and leave it up to some of the younger Members here.

Mr. BEVILL. Did you look at George when you said that?

Mr. BROWN. Yes. I think basically we are all here to support the recommendations coming from the State of California Water Commission for projects in California. I know I am. And of course the major project is the Santa Ana River project which I think I have testified in support of the last 20 years. I will continue to support it.

There is the San Sevaine project which is an adjunct of the Santa Ana Project, which I want to call particular attention to. And then there are provisions in here for supporting additional small reclamation projects which the State Water Commission has recommended a quarter of a million dollars for. I am enthusiastically in support of those projects also.

I elaborate on these views in my prepared statement, and I will leave copies of that. I thank you again for allowing me to lead off here.

Mr. BEVILL. Thank you, Dean.

[The statement of Mr. Brown follows:]

Representative George E. Brown, Jr.
Testimony Before the
Energy and Water Subcommittee
of Appropriations
March 29, 1995

Mr. Chairman, thank you for the opportunity to testify this morning in support of the water projects recommended by the California Water Commission for FY96 which are of great importance to the state of California. Ms. Audrey Tennis, the Chair of the Commission will be here later today to speak about the projects.

I would like to briefly highlight several of these projects that are of particular interest to the people living in Riverside and San Bernardino Counties. Mr. Ken Miller from the Dept. of Transportation and Flood Control in San Bernardino County will be testifying on behalf of these projects later in more detail.

These projects will provide vital water management infrastructure for the people of southern California. As recent events have demonstrated, this region is vulnerable to both water shortages and to devastating floods which can cost billions of dollars in damage. Prevention has proven to be more cost-effective than mitigation. In recognition of this, I would encourage the Committee to continue its support of the Santa Ana River projects that will protect the more than 2 million people who live in the Santa Ana floodplain.

There are also a number of projects in California that are requesting funding under the Bureau of Reclamation's Small Reclamation Projects Loan Program. I support the California Water Commission's recommendation that $250,000 be provided to initiate federal participation in the San Sevaine Creek Water Project. This project will provide flood control and enhance local water conservation efforts in western San Bernardino County. The project would create water storage and conservation facilities which would conserve stormwater runoff and reduce the need for water purchases.

Sound water management is vital if the economy of southern California is to survive and flourish. These projects provide essential water management infrastructure to the citizens of California, construction jobs during the project life-time, and lasting economic stability through the provision of stable water supplies to the businesses and residents of this region. Again, I thank you for your cooperation and consideration of these important California projects.

Mr. BEVILL. And next we recognize our good friend and colleague, Wally Herger. Glad to have you with us, Wally.

Mr. HERGER. Thank you very much, Mr. Chairman. And we appreciate very much your each year having this special California day for us. And again, thank you. I would like to recognize the current chairman of the California Water Commission and a constituent of mine, Audrey Tennis, who is in the audience.

Mr. Chairman, flooding continues to be a primary concern throughout my northern California district. The historic floods of 1995, which left eight counties in my district as Federal disaster areas in January, and another 10 counties as disaster areas in March, underscores the vital need for an aggressive flood prevention program.

Recently, however, the President announced a new flood control policy for the Army Corps of Engineers. If implemented, this hastily crafted proposal would unfairly phase out critical flood control programs in large western States like California, simply because floodwaters originate entirely within their borders. I strongly oppose this inequitable proposition.

One area that has been particularly hard hit by flooding through the years has been the Marysville-Yuba City area. Storms have devastated these towns at almost regular intervals over the last 45 years, claiming scores of lives, displacing thousands of families and deterring industrial and commercial development.

I strongly endorse the Water Commission's recommendation to appropriate $6 million for the reconstruction of the levees which are so critical to protecting the life and property of the citizens of this area.

Two other northern California projects that provide vital flood protection to over a million people and billions of dollars in property are the Sacramento River Flood Control project and the Sacramento Riverbank Protection program. Our recent floods severely eroded and weakened levees and other flood protection structures along the Sacramento River Floodway corridor. Spring runoffs will weaken these structures even more in the weeks ahead.

It is crucial that these protections be repaired and reinforced prior to our next flood season. I strongly endorse the Water Commission's recommendation that these programs receive appropriations of $100,000 and $3 million respectively.

Another very important concern in my district is the drastic population decline of the now endangered winter run Chinook salmon in the Sacramento River and its tributaries. In an effort to reclaim this species, I strongly support an appropriation of $11.8 million to continue the operation of the temperature control device at Shasta Dam, and an appropriation of $1.1 million to continue the captive brood stock program. Together these projects will help the Bureau of Reclamation establish a viable population of salmon.

Mr. Chairman, in the interest of time, I urge the subcommittee to make appropriations in accord with the recommendations of the California Water Commission for additional projects listed in my written statement, which I request to be submitted for the record.

Thank you.

[The statement of Mr. Herger follows:]

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman
March 29, 1995

Statement by The Honorable Wally Herger

Thank you, Mr. Chairman, for the opportunity to testify before this body with regard to Fiscal Year 1996 funding for Army Corps of Engineers and Bureau of Reclamation programs in the State of California.

There are several projects before the committee today which are of particular importance to the people in my northern California congressional district, which contains much of the state's primary watershed. I urge the Subcommittee to appropriate funding for the following projects in accord with the recommendations of the California Water Commission.

Flooding has historically been a major concern throughout my district. The recent floods of 1995 which left 8 counties in my district as federal disaster areas in January and another 10 as disaster areas in March underscore the need for an aggressive flood prevention program in northern California.

I would like to preface my remarks on flood control by commenting briefly on the President's new flood control policy for the Army Corps of Engineers. This hastily crafted proposition singles out larger western states, like California, simply because flood waters originate entirely within their borders. If implemented, this policy will phase out most of the federal funding for flood control in northern California, thereby destroying in a few short years what the people in my district have spent decades to build. The recent flooding which has ravaged my state is evidence enough of why I strongly oppose this ill-timed and inequitable proposition.

One region of northern California that has been particularly hard hit by flooding through the years has been the Marysville-Yuba City area. Storms have devastated this area at almost regular intervals over the last 45 years, claiming scores of lives, displacing thousands of families and deterring industrial and commercial development in an area that has historically suffered from high unemployment, welfare and crime rates.

The Army Corps of Engineers is presently working on levee restoration construction and an ongoing feasibility study to determine the most economical method of providing efficient and effective flood prevention for the Marysville-Yuba City area. This year the California Water Commission has recommended an appropriation of $6,000,000 for these projects. I strongly endorse this recommendation. I also support the Commission's recommended appropriation of $100,000 for feasibility studies and levee reinforcement along the Yuba River basin.

Two other projects administered by the Corps of Engineers that provide significant flood protection to northern Californians are the Sacramento River Flood Control Project and the Sacramento River Bank Protection Program. These projects protect over one million people and billions of dollars in property along the Sacramento river and tributaries and are vitally important to communities along the Yuba and Feather Rivers in my district. Recent floods and the imminent spring run-off have and will continue to severely erode and weaken the levees and other flood protection structures along the floodway corridor. It is crucial that these protections be repaired and reinforced prior to the 1996 flood season. For this reason I strongly endorse the Water Commissions recommendations that these programs receive appropriations of $100,000 and $3,000,000 respectively.

Communities in my district located along the Sacramento River Flood Control Project have an increasing need for a comprehensive management plan that will reconcile the often competing needs for ecosystem and environmental management, economic growth and recreation. For this reason I support the Water Commission's recommendation to appropriate $800,000 for the Corps of Engineers to conduct a Sacramento River and Tributaries Ecosystem Management Study. Once completed, this study will provide a framework for a management plan that can be effectively implemented by local, state and federal agencies.

Another very important concern in my district is the drastic decline in winter-run Chinook salmon populations in the Sacramento River and its tributaries which has resulted in the listing of the species as endangered under both state and federal law. Two appropriations recommended by the Water Commission are vital to the reclamation of this species. The first is $11,830,000 for the continued operation of the temperature control device at Shasta Dam by the Bureau of Reclamation. The second is $1,100,000 for a captive broodstock program. Together, these projects will help establish a viable population of salmon for sportsmen and for the many economic sectors that depend on a healthy salmon population. I strongly support both of these recommended appropriations.

The California Reclamation Board, Department of Fish and Game and the Glenn-Colusa Irrigation District are continuing their efforts with the Corps of Engineers and Bureau of Reclamation to perform cost-shared environmental documentation for the restoration of the Sacramento River Hydraulic gradient and restoration or replacement of screens to protect migratory fish. The Water Commission has recommended appropriations of $300,000 for the Corps and $3,000,000 for the Bureau of Reclamation for these purposes. I strongly support both appropriations.

Thank you for this opportunity to testify in support of these projects which are so important to the people of northern California.

WATER.TEST2

Mr. FAZIO. Thank you, Wally. In an unprecedented display of bipartisanship, Mr. Myers has given me the chairmanship.

Mr. MYERS. I apologize for being late. There are too many meetings this morning, including a conference with the Senate on a supplemental appropriations bill. So I apologize. Thanks for starting on time.

Mr. FAZIO. John, I just wanted to say, first of all, on behalf of our entire delegation, how much we appreciate you and Tom Bevill for the tremendous assistance you have given us through the years. You know our projects, and you have been extremely supportive. And I know that is on a bipartisan basis. And I think everyone in our delegation gathered here wants to thank you both.

I also wanted to say in reference to Wally's opening comment, the Corps budget this year is a nonstarter. Every one in our delegation, I think, understands that it cannot fly, and I hope that Mr. Riggs and I will be able to prevail on others and I am sure there are other members of this panel instinctively who will oppose any proposal that would eliminate a State the size of California from consideration from Corps flood control projects. But we are, at the same time, required to find some funds because we are all going to be part of a very severe reduction in discretionary spending here. So not by eliminating California, but by some other method we are going to have to find ways to cut spending.

And I don't expect this panel to focus on cutting today. I think that is not within the tradition of what we are here for. But I hope you understand that is what this committee will have to do as we get to the end of the line.

Thank you very much and of course I associate myself with many of the things Wally said, since we share a lot of territory in the Sacramento Valley. Thank you.

Mr. HERGER. Thank you very much, Vic.

Mr. FAZIO. Jane Harman.

Ms. HARMAN. Thank you, Mr. Chairman, and thank you, committee. I would like to offer special thanks for your care for the projects in my district. I appreciate it. My constituents do. And also to acknowledge the enormous assistance that Mr. Fazio and Mr. Riggs provide as Members of this subcommittee for projects in California.

Let me first introduce four constituents who are either here or who will testify later about the projects I am about to address. One is Rich Atwater, the West Basin Water District's general manager. Second is Gregory Woodell, a planning specialist for the Los Angeles County Department of Beaches and Harbor. Third and fourth are Rancho Palos Verdes Mayor Lee Byrd and Councilman John McTaggert.

Let me address four projects which I have spoken to in prior years. First is the L.A. Area Water Reclamation and Reuse project. This is, as you know, the Nation's largest water recycling plant. It is a major win for Southern California in many ways. It provides a dependable supply of water. It protects the endangered global environment by keeping billions of gallons of sewage effluent from reaching Santa Monica Bay, and it creates thousands of green technology jobs in an area very hard hit by defense downsizing.

At any rate, thank you very much for appropriating 8.25 million in the last fiscal year. The administration and I strongly support full funding for this year at 9.3 million, which will move this project, which has now opened, toward completion.

Secondly, Marina Del Rey. This is the largest man-made small craft harbor in the country. A serious problem there, sadly, is sediment, which makes navigation in the harbor very difficult, not just for recreational craft, but it restricts the ability of the U.S. Coast Guard, the L.A. County Sheriff and Fire Department and the lifeguards to effectively respond to ocean emergencies.

I thank you very much for the 1.758 million to the Army Corps of Engineers last year. I was hopeful that this would do it. However, with the recent flooding that you have just heard about, sadly, a large amount of sediment has now been deposited one more time in the marina, and we are requesting 1.7 million in fiscal year 1996 to allow the marina's channel entrance to be kept open.

This will not be a long-term solution to the sediment problem, and for that, I am hopeful that you will continue to fund the second part of a navigation study. Last year that study received $212,000, and this year we are hopeful that another $200,000 will be provided.

Let me just state for the record that some options that need to be considered to keep the channel open on a long-term basis include relocating the Ballona Creek Flood Control outlet and/or creating a containment area for the disposal of contaminated materials.

Finally, let me talk to the Rancho Palos Verdes shoreline protection issue. There is an active landslide there. Marine tide pools have been replaced by rocks and dirt. Erosion of 10 million tons of soil interferes with marine life off the peninsula's coast and there is tremendous damage to a major city thoroughfare in Rancho Palos Verdes. I am hopeful the committee will provide $200,000 in fiscal year 1996 to allow the Army Corps of Engineers to continue a feasibility study to figure out a cost-effective solution to the landslide problem.

That, Mr. Chairman, concludes my request. Again, let me thank you for your responsiveness to me and to my district.

Mr. FAZIO. Thank you very much, Jane.

Duke Cunningham.

[The statement of Ms. Harman follows:]

STATEMENT BEFORE THE ENERGY AND WATER SUBCOMMITTEE
COMMITTEE ON APPROPRIATIONS
CONGRESSWOMAN JANE HARMAN
MARCH 29, 1995

Thank you Mr. Chairman and Members of the Subcommittee for the opportunity to appear this morning to request your continued support for four projects in my District.

I would like to provide you with a brief overview of the importance of these four projects and allow my constituents to fully explain their details. Before proceeding, I would like to take a moment to introduce these individuals. Richard W. Atwater, the West Basin Water District's General Manager, will be submitting testimony on behalf of the innovative Los Angeles Area Wastewater Reclamation and Reuse Project. Gregory Woodell, a planning specialist for the Los Angeles County Department of Beaches and Harbors, will discuss two crucial projects at Marina Del Rey. And, Rancho Palos Verdes Councilman John McTaggert will outline the Rancho Palos Verdes Coastline Stabilization effort on the Palos Verdes Peninsula.

LOS ANGELES AREA WATER RECLAMATION AND REUSE PROJECT

The Los Angeles Area Water Reclamation and Reuse Project in El Segundo is the nation's largest water recycling plant. This water recycling project will help provide a dependable supply of water for arid Southern California, will work to protect our endangered local environment by keeping billions of gallons of sewage effluent from reaching Santa Monica Bay, and will create thousands of "green technology" jobs in Southern California. Once completed, the project is sure to represent a tremendous return on the federal investment made by the U.S. Bureau of Reclamation.

This Committee also recognized this fact and appropriated $8.25 million for the endeavor in FY 1995. Once again, the project remains a priority to both the Administration, which has requested $9.3 million in FY 1996 funding, and to the citizens of Southern California. respectfully request that the Committee support this request and fully-fund this crucial projec

MARINA DEL REY ENTRANCE CHANNEL DREDGING

Mr. Chairman, Marina Del Rey is the largest manmade, small-craft harbor in the Country. Last fall, environmental hurdles were overcome and 57,000 cubic yards of sediment were dredged from the Marina's entrance channel, which had been more than halfway closed. However, recent winter storms, which made national headlines, have caused a large amount of sediment deposits to accumulate at the Marina's entrance channel -- once again dangerously restricting the ability of the U.S. Coast Guard, the L.A. County Sheriff, Fire Department, and Lifeguards to effectively respond to ocean emergencies as well as making passage by smaller vessels dangerous.

In FY 1995, Congress added $1.758 million to the Army Corps of Engineers' Operation and Maintenance budget to dredge the Marina. I respectfully request that the Committee act again and include $1.7 million in FY 1996 funds to allow the Marina's entrance channel to be kept open.

MARINA DEL REY HARBOR NAVIGATION STUDY

Dredging is only part of the strategy for dealing with sediment buildup at the Marina. The Corps is currently studying long-term solutions to address the Marina's recurring problems. An ongoing reconnaissance study is evaluating several options including relocating the Ballona Creek Flood Control outlet and creating a containment area for the disposal of contaminated materials. The selection of one or more of these preventive options will reduce the need for future dredging at the Marina, and in turn should reduce the need for federal funding.

In FY 1995, the Committee supported the Administration's $212,000 request to continue this reconnaissance study. The Administration has requested $200,000 for FY 1996 to allow the Corps to complete its reconnaissance study and begin a feasibility study. I respectfully request that the Committee once again show its support for this project and for a long-term solution to the problems at the Marina by supporting the Administration's FY 1996 budget request.

RANCHO PALOS VERDES COASTLINE STABILIZATION

Mr. Chairman, an active landslide continues to wreak havoc on the Palos Verdes Peninsula's fragile coastal environment. Marine tidepools have been replaced by rocks and dirt. The erosion of ten million tons of soil interferes with marine life off the Peninsula's coast. Furthermore, the landslide continues to cause tremendous damage to a major city thoroughfare in Rancho Palos Verdes.

This Committee has supported this project in the past and last December, a cost-shared Army Corps of Engineers feasibility study was begun. I request that the committee provide $200,000 in FY 1996 to allow the Corps to continue this feasibility study to mitigate the landslide area and restore the Peninsula's unique and valuable marine habitat.

CONCLUSION

Mr. Chairman, the aforementioned projects are crucial investments in Southern California's economy and its environment. I hope that the Committee continues to show its strong support for these endeavors by granting these funding requests.

Thank you.

Mr. CUNNINGHAM. Thanks, Vic. As you are well aware, and this is more for Mr. Myers and some of the non-Californians and the Alabamians, which my mom was born in that great State, Mr. Bevill——

Mr. BEVILL. Duke, I always knew there was something special about you.

Mr. CUNNINGHAM. But if you look at California, it is kind of hard to talk about floods on one hand, and on the other hand, telling that we are a State that is always in a drought. And then earthquakes and central valley projects that take the water for the fish, and then deny the farms—and most of your fruits and vegetables in Alabama and other areas come from California. It is one of our leading economic indicators. You have got one in eight Americans who lives in the State of California, one in eight.

And if you take a look at the population needs and the population growth, and then what the farms need, we import in the State of California 98 percent of our water—98 percent is imported to California. And what we are trying to do in both the northern portions of San Diego County and down in the city itself, is reclaim already-used water. And to make it not palatable for human consumption, but use it on roadways and golf courses and those things, and basically reuse the existing water that we import.

If you take a look at the reclamation program, when 98 percent of the water comes in; San Diego itself will use 700 square miles which will be served by the reclamation projects. That is a large area, the enormous economic and environmental benefits to the area; and you take a look at the California devastation and the defense cuts, we have lost a million jobs just in the State of California. But yet we have got high demand for agriculture. We have illegal immigration, we have the floods, the earthquakes and so on.

And what effects the rest of the United States? California effects all of those things. It is kind of like we are the Washington, D.C. of the rest of the country. So these investments affect you as well. And we feel it is important. The estimated cost of about $646 million to complete the San Diego portion.

I look at the City of Escondido has received Federal funds in fiscal year 1994 for $400,000, and fiscal year 1995 for $360,000, out of a $2.5 million appropriations. The Bureau of Reclamation and in the fiscal year 1996 budget includes one million dollars for the Escondido Water program. And what is unique about the Escondido Water project, the city is paying—the city and residents are paying 75 percent of the total cost. This is a Federal-local partnership in both the City of San Diego and Escondido, which is just north of there. And I think that is what we take a look at when we are trying to design programs.

The state-of-the-art design improvements for the existing Escondido site provide 18 million gallons a day, which is muchly needed. And if you take a look, that can go on agriculture applications, parks, athletic fields, roadways, landscaping and so on. We are just trying to get some supplemental water.

We went through a seven-year drought. And even when our reservoirs are filled, especially down in San Diego, we are in a drought and we are looking at another seven years, even when you hear about floods and so on.

So we would like consideration of the programs. It is good for all of California and it is good for all of the rest of the United States, unless you want your produce to go up and your vegetables that you get right here in Washington, D.C., most of them come from California. So I appreciate it.

I thank you.

[The statement of Mr. Cunningham follows:]

RANDY "DUKE" CUNNINGHAM
51ST DISTRICT CALIFORNIA

NATIONAL SECURITY COMMITTEE
ECONOMIC AND EDUCATIONAL OPPORTUNITIES COMMITTEE
CHAIRMAN, SUBCOMMITTEE ON EARLY CHILDHOOD, YOUTH, AND FAMILIES
ASSISTANT MAJORITY WHIP

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Congress of the United States
House of Representatives
Washington, DC 20515-0551

Statement by Representative Randy "Duke" Cunningham
"California Day" Testimony
March 29, 1995

Mr. Chairman:

It is a pleasure to be given the opportunity today to address the members of the Appropriations Subcommittee on Energy and Water Development. I am delighted that you have taken the time to listen to the special needs and issues of concern to the residents of San Diego. I would like to take a few moments to highlight the water projects that are underway in my congressional district.

* Section 1612 of Public Law 102-575, the Central Valley Project Improvement Act, permits the Secretary of the Department of the Interior to provide financial assistance for water reclamation projects in San Diego. The Bureau of Reclamation is authorized to help in the planning, design and construction of the water reclamation projects addressing the San Diego area at a federal cost-share of up to 25%.

* The San Diego Area Water Reclamation Program is an ambitious, long-term program intended to reduce regional reliance on imported water supplies. In fact, 98% of San Diego's current water supply is imported from surrounding areas. Therefore, I am pleased that the cities of San Diego, Escondido and Poway have joined together to produce a water reclamation project that will most efficiently utilize existing and planned water reclamation facilities and resources.

* When the San Diego Area Reclamation Program is completed, an area of more than 700 square miles will be served, providing enormous economic and environmental benefits to the entire area.

* San Diego's Water Reclamation Program is estimated to cost about $646 million when it is completed. The annual $1000 per acre-foot cost of the reclamation project is competitive with the development of new imported or other local water supplies. However, the level of capital investment makes it a heavy financial burden on local agencies. While parts of the project receive low-interest loans, the bulk of the costs will be charged to local ratepayers. Therefore, I am not convinced that the project can be financed solely with local capital resources. Realistically, I believe that federal funds must be provided to ensure for the proper construction of the water project and its accompanying benefits.

* The overwhelming support at the local level has convinced me that cost sharing projects can work to complete much needed national programs. Perhaps the success in funding efforts in my district could set a standard for other states whose local municipalities are less inclined to share the burden in an effort to complete a program of benefit to its state and its citizens. I was encouraged that the City of San Diego has budgeted millions of dollars for the Reclamation Program to become a reality.

* The City of Escondido has received federal funding for its water reclamation program for two consecutive years for a total federal contribution of $760,000. In FY 1994, the Escondido Water Reclamation Program received $400,000. Last year, as part of the San Diego Water Reclamation Program, Escondido received $360,000 out of a total appropriation of $2.5 million.

* The Bureau of Reclamation's FY 1996 budget includes $1 million for the Escondido Water Reclamation Program, as part of a larger $2.34 million appropriation for the San Diego Area Water Reclamation Program.

* I believe that additional funds should be allocated for the Escondido Water Reclamation Program. It is the final recommendation of the California Water Commission that $9 million be allocated for FY 1996 appropriations, which is well above the $2.34 million request by the Administration. I trust the recommendation of the California Water Commission and believe that they are committed to the completion of cost-effective water programs.

* State-of-the-art design improvements to Escondido's existing treatment plant, the Hale Avenue Resource Recovery Facility, would expand the facility's reclaimed water capacity to 18 million gallons per day. This project would significantly increase the amount of reclaimed water available for the uses not requiring potable water, including agricultural applications, irrigation of golf courses, parks, athletic fields, roadway landscaping, school landscaping, and general decorative landscaping.

* Escondido has budgeted for just over 75% of the program's total cost of $65 million. A total federal contribution of 25% -- $14.240 million -- is needed to make the Escondido Water Reclamation and Reuse Program a reality.

* It is also important to note that the City of San Diego is undertaking a regional water reclamation program that will provide over 8.6 billion gallons of reclaimed water each year to its users. Four new water reclamation plants (one in northern San Diego, one in central San Diego, and two in southern San Diego near the border with Mexico) will be included in the new regional reclamation program. I am encouraged that the water

reclamation facilities will service commercial, industrial, and residential customers through a complex distribution network, including about 125 miles of pipeline. The construction of the regional water facilities will not only provide initial labor for area residents, but will provide for additional high-paying, high-skilled jobs to properly maintain and operate the water reclamation sites. It is also important to understand that the development of a reliable local water supply will improve the long-term vitality of the San Diego economy, thereby strengthening the region's ability to attract and preserve employers.

* The total estimated cost of the San Diego Regional Reclamation Program in 1995 dollars is $391.8 million. While the City of San Diego has budgeted for this program, their efforts have fallen short of the mark. Therefore, I ask that federal funds be provided to help in the construction of this much needed project.

Again, thank you, Mr. Chairman, for your attention to this matter. I understand that the City of San Diego intends to contact you personally regarding this matter. I urge the Committee to consider the City's testimony, just as you have been kind enough to consider mine.

Mr. FAZIO. Thank you, Duke.

Let me just say, we have used up about 20 minutes of the hour. We have a number of members who will need to have a few words with us. All the statements that have been prepared will be made part of the record.

Let me urge brevity. I think in the past, Mr. Bevill has tried to reward supplicants based on the brevity of their comments. Mr. Myers may wish to pick up on that precedent, I don't know.

Mr. MYERS. There are certain precedents that the committee always lives by.

Mr. FAZIO. Right.

So with that in mind, Cal Dooley.

Mr. DOOLEY. Yes, thank you. Thank you, Congressman Fazio, and I really would like to echo your comments in terms of the Army Corps budget being a nonstarter here. I know that, and people from my district who are in attendance today will also be heartened by that comment. I am joined by James Crook, of the Kaweah Delta Waters Conservation District, Dick Schafer, of the Tule River Association, as well as Kern County supervisor Mary K. Shell. They are here once again trying to complete some well-needed projects.

We cannot, at this point, change the rules of the game. If we accept the Army Corps' approach, these are people, who representing local partners, lose. They have committed scarce resources into developing projects that are going to provide for the safety of our residents. To change the funding requirements now would mean that some of these projects, partly paid for by local participants, would be unable to reach completion.

I support the President's budget in a number of areas. He is providing money which is well-needed to bring environmental improvements that will allow the historic State Federal agreement in the San Francisco Bay Delta to continue. The President's budget also recognizes some of the needs as a result of the recent flooding in California; that we need to find a fix for the Arroyo Passajero problem, as well as providing the funds for the completion of the feasibility study for Caliente Creek.

However, there has been some oversights. I hope that the committee will consider providing funding to deal with the problem that we have on Silver Creek in the Mendota-Firebaugh area. I hope that the committee will also consider providing for funding beyond what the President has offered for the Kaweah River project as well as the Success Dam project.

Both of those, I am confident, will be very cost-effective and will provide substantial benefits. So with that, Mr. Chairman, thank you for this opportunity.

Mr. FAZIO. Thank you, Cal.

Next the Ranking Member of the Natural Resource Committee, George Miller.

[The statement of Mr. Dooley follows:]

CONGRESSMAN CAL DOOLEY
before the
HOUSE APPROPRIATIONS SUBCOMMITTEE
ON ENERGY AND WATER DEVELOPMENT
March 29, 1995

Mr. Chairman and Members of the Subcommittee:

I want to express my appreciation for the opportunity to testify before the Subcommittee in strong support of energy and water development projects and programs important to the 20th Congressional District of California, the state and the nation.

BUREAU OF RECLAMATION

CENTRAL VALLEY PROJECT

As you know, the Congressional District that I represent lies within the Southern portion of California's vast Central Valley. The Central Valley Project (CVP) has made the Valley the most productive agricultural region in the world, providing a stable, abundant supply of high quality food and fiber for the entire nation and for our trading partners. The CVP also includes features that control flooding, reduce serious overdrafts of groundwater and provide water and environmentally clean hydroelectric power for cities and industries.

BAY-DELTA AGREEMENT -- On December 15, 1994, the federal government, together with agricultural and urban water users, the environmental community and the State of California concluded an historic agreement to protect the environmental resources of the San Francisco Bay-Sacramento-San Joaquin River Delta. The agreement addresses water quality and endangered species concerns while providing economic certainty for water users.

Parties to the Delta agreement have now begun the process of implementing the accord and looking for ways to secure the long-term health of the resource. The President's budget request for the Bureau of Reclamation includes funding for a number of Delta-related studies and actions that are important to implementing the agreement.

It is imperative that Congress support the Bay-Delta agreement. I want to urge the Committee to provide the maximum level of support for the studies and actions that will ensure that the agreement works for all Californians.

CVP OPERATIONS AND MAINTENANCE -- I support the President's request of $59.6 million for operation and maintenance of the Central Valley Project. However, I am concerned about the growing backlog of maintenance work on the project, and I urge the Committee to keep a close watch on that situation.

UNSCREENED DIVERSIONS -- One of the key items in the President's budget for the Delta is a program to screen the thousands of unscreened water intakes in the Delta. While attention usually focuses on the Bureau pumping plant that sends water to the San Joaquin Valley, these unscreened Delta diversions are a major source of fish damage. I join water users and the environmental community in supporting the President's request of $6 million for this program.

SHASTA DAM TEMPERATURE CONTROL DEVICE -- The President's budget includes a total of $31.8 million for construction of a device to help water managers control water temperatures to benefit salmon in the Sacramento River. This program is supported by water users and environmentalists alike because it protects the fish while making the maximum amount of water available to users.

I support the President's request, of which nearly $12 million would come from the CVP Restoration Fund. The rest would come from regular appropriations. These federal funds should be made available regardless of the timing of the State's share of the costs.

GLENN-COLUSA IRRIGATION DISTRICT FISH SCREEN -- I want to join my colleagues from the Sacramento Valley in supporting an appropriation of $3 million in FY 96 to advance work on a permanent new fish screen at Glenn-Colusa Irrigation District's Hamilton City Pumping Plant.

The new screen is necessary to allow the District to meet its water needs while protecting the endangered winter run chinook salmon. Projects such as this that benefit the salmon are important to the entire CVP service area because Endangered Species Act pumping restrictions intended to protect the salmon have had a major impact on water supplies in the San Joaquin Valley.

SAN JOAQUIN RIVER COMPREHENSIVE PLAN -- I strongly urge the Committee to withhold the President's request for $1,000,000 in FY 1996 funding for development of the San Joaquin River Comprehensive Plan, which was mandated by the Central Valley Project Improvement Act (CVPIA) until Congress has had the opportunity to reassess the scope and direction of the plan.

Last October, Interior Secretary Bruce Babbitt concluded that reestablishment of a salmon fishery on the Upper San Joaquin River would not be "reasonable, prudent or feasible" because it would divert too much water from the local economy.

The House Resources Committee is likely to re-examine the San Joaquin River plan, as well as the entire CVPIA, in the near future. In light of the authorizing committee's plans and the Secretary's statement, the Appropriations Committee earlier this month approved report language for the Emergency Supplemental Appropriations bill directing the Bureau to withhold funding for the further development of the San Joaquin River plan in FY 1995.

KESTERSON REPAYMENT -- I would also like to request that the Subcommittee take action to bar the Bureau from initiating the collection of any reimbursable costs associated with the Kesterson cleanup program until certain criteria are met. At this time, I believe that these three criteria should be considered: 1) the Bureau of Reclamation should provide drainage service for the San Luis unit; 2) repayment should be set under the final judgement in Sumner Peck Ranch, Inc. et al v. Bureau of Reclamation; or 3) Congress authorizes the transfer of the Central Valley Project to local water districts.

I would encourage the Subcommittee to provide the Bureau with specific authority to defer the collection of any monies associated with these programs until one of these criteria are met. I would also ask that the Subcommittee work with me and my colleagues in the central valley to craft a solution to this long-standing problem.

ARMY CORPS OF ENGINEERS

CENTRAL VALLEY FLOODING

The winter storms that have brought a welcome relief from California's recent drought years, have also brought renewed, severe, and now, deadly flooding to several small communities in the Central Valley. The most recent storm caused the collapse of a bridge on Interstate 5 on the Arroyo Pasajero Creek near Coalinga, killing seven residents of the city of Huron. Other communities impacted by the flooding include the cities of Mendota, Firebaugh, Avenal, Arvin and Lamont. In light of this recent tragedy, I strongly urge the subcommittee to continue funding for studies examining the flooding problems in these areas, in order that we might find permanent solutions to these very serious problems.

I would also like to comment on the recently announced -- and surprising -- new Corps of Engineers policy. It would, in a short period of time, eliminate the Corps' involvement in flood control projects in the state of California. At a time when people are losing their lives because of dangerous flood conditions, it is preposterous to consider developing policy that would save the federal government some dollars, but would certainly endanger the health and safety of its citizens. For those local entities and states who have engaged in cost-sharing agreements for ongoing projects, it is also a betrayal of the trust that has been established between those partners. While I know that the announced policy change did not originate from the subcommittee, I would certainly urge the committee to use its considerable influence with the Administration to reverse this very disturbing new policy.

ARROYO PASAJERO -- For years, the City of Huron has endured frequent flooding of its main roads, thereby isolating the community, sometimes for days. While that situation is bad enough -- the city has already twice this year mopped up mud flows of up to six feet -- residents of Huron recently experienced the added agony of burying seven of its residents who perished when the bridge over Arroyo Pasajero Creek crumbled under the weight of the flood waters carried out of the coastal mountains. Similar flows have closed the road dozens of times during the last twenty years. The problem is caused in large part by the inadequate flood control measures designed to protect the California Aqueduct, a joint federal-state facility.

A ponding basin intended to protect the aqueduct from Arroyo Pasajero flood flows was installed by federal and state authorities in the 1960s when the aqueduct was built. Unfortunately, the engineers underestimated the volume of water and sediment associated with annual flooding in the area and the ponding basin soon proved far too small to contain the problem. As a result, water and mud has been backing up on the roadways and fields for more than two decades.

To make matters worse, the tons of sediment dumped in and around Huron contains high levels of asbestos, which occurs naturally in the drainage area. For several years, I have made the point to this committee that flooding from the Arroyo Pasajero not only threatens the city of Huron and the stability of the California Aqueduct -- which serves millions of water users -- it also poses a serious health threat. This year, the threat became real. The Aqueduct was breached at several points, and the communities of Huron and Avenal were forced to use bottled water for many days. While the breach did not ultimately impact the water quality and supply for millions of southern Californians, it is clear that the threat is now very real. The subcommittee, in its wisdom, has supported efforts that will avoid this situation in the future, and I urge your continued support.

The feasibility study began last year, and I urge the subcommittee to continue to provide funding for the study at the $700,000 level recommended by the President and the California Water Commission.

In addition, the Bureau of Reclamation and the State of California have an on-going program to acquire lands in the flood zone. I strongly urge the subcommittee to continue to support the acquisition program in FY 96. The California Water Commission recommends an appropriation of $800,000 for this purpose.

MENDOTA-FIREBAUGH FEASIBILITY STUDY -- The farming community of Mendota in the 20th Congressional District has also suffered periodic flooding from Silver and Panoche creeks for many years. The flooding threatens city businesses, homes and a high school, while sediment carried by the water chokes irrigation canals. The streams drain nearby hills where the soils are laden with selenium and heavy metals. During flooding, these naturally occurring contaminants end up in irrigation water and eventually in the San Joaquin River, contributing to water quality problems in the sensitive Bay-Delta Estuary.

Flooding from the main stem of the San Joaquin River is a continuing problem in the nearby City of Firebaugh, which is represented by my colleague, Representative Gary Condit.

While we have appreciated the subcommittee's prior support for the reconnaissance study -- which has now been completed -- we are troubled by the potential impact of the Corps' new policy. While the budget contains no funding for the feasibility phase, we would, nevertheless, urge the committee to provide $150,000, as recommended by the California Water Commission, to begin the study.

CALIENTE CREEK -- Finally, I strongly support the President's budget and the California Water Commission's recommendation for an appropriation of $171,000 for the continuation of a feasibility study for the Caliente Creek Flood Control Project in Kern County. The study is investigating various flood plain management alternatives intended to alleviate a long-standing flood control problem in the communities of Arvin and Lamont.

TULE RIVER/SUCCESS DAM

One of my highest priorities is the authorization of a proposed project to greatly increase flood protection and water storage capacity on the Tule River by raising the spillway on Success Dam by 10 feet. This simple and relatively inexpensive project will protect the homes and businesses of more than 30,000 San Joaquin Valley residents. In addition to the funding request for FY 96, we will in the near future seek authorization for the enlargement of the Success Dam.

Last year $841,000 was appropriated for seismic evaluation of Success Dam. The President and the California Water Commission recommends that $700,000 be appropriated in 1995 for continuation of the seismic evaluation of Success Dam. I support that request.

I also request that the appropriations bill include the California Water Commission's recommendation of an additional $200,000 for the continuation of the Success Reservoir Enlargement Feasibility Study, which has been stalled since 1992 pending the outcome of the seismic studies.

SAN JOAQUIN RIVER BASIN

KAWEAH RIVER -- Another project of high priority to me is the flood control storage capacity project on Kaweah Lake behind Terminus Dam. The feasibility stage has now been completed, but not until the cost of the study increased three times over a six year period, nearly doubling the original estimate of $1.6 million. Now, as a result of the newly announced Corps policy, the President's budget includes no funding for the pre-construction, engineering and design phase. Despite this, I support the California Water Commission's request for $300,000, and urge the subcommittee to provide funding for the next critical stage of this project.

I also want to express my support dedicating $200,000 from the Bureau of Reclamation construction account to support the continuing Kaweah River Corridor Project. The Bureau committee $1 million to the project in FY 95, and the state of California has pledged $565,000 to this effort to address fish and wildlife needs. It is also supported by the Kaweah Delta Water Conservation District, the City of Visalia and several other local agencies.

KINGS RIVER/PINE FLAT DAM FISH AND WILDLIFE ENHANCEMENT -- I strongly support the President's request for $500,000 for a feasibility study of fish and wildlife habitat restoration measures on the Kings River at and below the Corps' Pine Flat Dam flood control project.

I am pleased that the Corps is planning to use the Section 1135 program for a turbine bypass. However, I urge the Committee to include report language along with the FY 1996 bill encouraging the Corps to continue on this course. The House approved such report language last year for the 1994 Water Resources Development Act, but the legislation was not considered by the Senate.

Thank you.

Mr. MILLER. Thank you, Vic. And Chairman Myers and Members of the committee, like all the Members of our delegation, we thank you for the support that you have given our State.

I am here in support of the recommendations of the Commission and, with respect to my own district, to ask for the final segment of funding on the Wildcat San Pablo Creek Flood Control project, which in this year of heavy rains demonstrated its value to the residents of the district, and the port of Richmond Channel deepening project, the dredging project.

And then on the general subject of dredging, which is so important to us in the San Francisco Bay area, I want to support Congresswoman Nancy Pelosi and Congressman Dellums in their efforts to provide for the dredging necessary to keep international commerce flowing. And particularly with respect to my district, where we have a heavy concentration of the international petroleum industry and the requirements of dredging to take care of those problems.

I also want to support what Congressman Dooley said about continuing the funds necessary to push forward the Bay–Delta studies and the agreements that we have reached there between the States, the cities, the farmers, the environmentalists and everyone involved, which I think will lead to the long-term solutions for California's major water allocation and environmental protection problems.

And I have some other comments on the projects that the Committee on Natural Resources supports and I thank you very much for your time and your indulgence.

Mr. FAZIO. Thank you for your short time, George. Appreciate it.

Now a new Member with a long coastline to be concerned about, Brian Bilbray.

[The statement of Mr. Miller follows:]

Statement of

CONGRESSMAN GEORGE MILLER

7th District - California

Subcommittee on Energy and Water Development
House Appropriations Committee

March 29, 1995

Mr. Chairman and Members of the Subcommittee, it is a pleasure to come before you to discuss several of the very important projects in the 7th Congressional District of California. As senior Democratic Member of the Committee on Resources, I will also offer some of my views on energy and water development issues that are important to both the authorizing and appropriations committees.

Projects for the 7th Congressional District, California

Mr. Chairman, I am requesting that this Subcommittee continue funding for several important ongoing Corps of Engineers' projects for the 7th Congressional District. These projects meet the strict economic and environmental criteria established by federal law. They are also supported by local governments, and by the State of California. I believe they deserve your support as well.

The Wildcat - San Pablo Creek flood control project for the North Richmond Community continues to be a high priority. I will support funding of $1,240,000 for this project in FY 1996. These funds will allow construction to be completed on critical channel and levee work. The funds will also provide riparian mitigation and recreation opportunities.

I am pleased to report that the Wildcat - San Pablo Creek Project is nearly complete. Even in its partially completed state, the project performed well during the heavy rains we experienced this winter.

The Port of Richmond Deepening Project is a matter of continuing importance to me. This project now moves to the active construction phase and is a "new construction start" for FY 1996. The Port requires $3,296,000 in construction funding for the deepening project in FY 1996, and $6,481,000 to provide operations and maintenance dredging at the inner and outer harbor. I fully support this funding request.

Dredging is a critical concern in the district. The Corps of Engineers' budget request includes $800,000 in construction funds to continue the deepening of critical navigation channels in the Bay Area. In particular, the San Francisco to Stockton Ship Channel is used by five major oil refineries in the Bay Area, and dredging this channel is an integral part of the refineries' plans to upgrade their facilities under the Federal Clean Fuels Program. It is critical that this project remain fully funded and on schedule as it is vital to the economic viability and expansion potential of the Bay Area and the State of California.

San Pablo Bay and Mare Island Strait will need $1,080,000 for maintenance dredging and operations.

Suisun Bay Channel has maintenance dredging scheduled, which will require $665,000 in FY 1996.

Dredging in San Francisco Bay

Keeping San Francisco Bay open to all types of navigation traffic benefits not only my own district, but the Bay Area in general. It is critical that we continue financial support for this important work, including projects that encourage innovative ways to dispose of dredged spoil material. For FY 1996, I urge you to support funding in the amount of $500,000 for the Sonoma Baylands project. This project will allow dredged material to be put to beneficial use in the creation of a large wetland area suitable for use by wildlife.

Bureau of Reclamation

Mr. Chairman, there are several matters affecting programs of the Bureau of Reclamation that I would like to mention at this time.

Fish Screen at Rock Slough

The California Water Commission has supported an appropriation of $80,000 to begin work on fish screening and recovery facilities at Rock Slough, the intake location for the Contra Costa Water District. This project is specifically authorized in section 3406(b)(5) of P.L. 102-575, the Reclamation Projects Authorization and Adjustment Act of 1992.

Installation of fish screens at Rock Slough will dramatically improve our chances of meeting the fishery restoration and protection goals established by the Central Valley Project Improvement Act. Although I am disappointed that the Bureau of Reclamation did not request funding for this project, it is imperative that construction begin promptly.

Implementation of Public Law 102-575

In October of 1992, President George Bush signed into law P.L. 102-575, the Reclamation Projects Authorization and Adjustment Act of 1992. We are now well into the third appropriations cycle for the projects and programs authorized by this law. Although P.L. 102-575 is most often associated with water resource programs in California, the law also affects dozens of Bureau of Reclamation projects serving millions of citizens throughout the Western United States.

P.L. 102-575 presents many challenges and opportunities for this Subcommittee, for the Bureau of Reclamation, and for cities and water users throughout the West. I will enthusiastically continue to support funding for programs authorized by P.L. 102-575. However, I must make clear my determination that all matters pertaining to implementation of this complex law be considered in consultation with the authorizing committee.

In particular, any proposals presented to this Subcommittee that would affect implementation of any title of P.L. 102-575, including the administration of Title 34, the Central Valley Project Improvement Act, would fall under the jurisdiction of the Committee on Resources. It would be my pleasure as senior Democratic Member of the Committee on Resources to continue to cooperate fully with this Subcommittee as implementation of this important law continues.

Transfer of Bureau of Reclamation Facilities

I am concerned that this Subcommittee may be asked to express support for changes in the Reclamation laws that would allow local project beneficiaries to assume ownership of all or part of various Reclamation projects. While I am not necessarily opposed to such proposals, and in fact have supported some of them in the past, I must strongly caution this Subcommittee that such proposals are clearly within the jurisdiction of the Committee on Resources.

Prohibition on Studying Terminus for San Luis Drain

For many years, this Subcommittee and the Congress barred the Bureau of Reclamation from using any funds to study or to construct the San Luis Drain or any other mechanism which would transport agricultural wastewater from the Central Valley to the Sacramento-San Joaquin Delta. Although the cleanup of Kesterson Reservoir is now complete and the subsurface drains in the Westlands Water District are still plugged, the San Luis Drain represents a continuing threat to water quality in the Sacramento-San Joaquin Delta and San Francisco Bay. The San Luis Drain is not a solution to the Valley's drainage problem; it merely transfers the drainage problem and the toxic water pollution to the Sacramento-San Joaquin Delta.

As my colleagues on this Subcommittee are aware, Congress has spent nearly $50 million since 1985 on studies of the irrigation drainage problems in California's Central Valley. Millions more were spent on drainage studies prior to 1985, when the San Joaquin Valley Drainage Study Program began. The studies have demonstrated that reasonable and economically feasible alternatives to completing the San Luis Drain to a disposal point in the Delta are available.

The San Luis Drain was authorized more than thirty years ago, long before we experienced the environmental disaster at Kesterson Reservoir. The waterfowl deaths and deformities at Kesterson were directly caused by toxic irrigation drainage water, and we cannot allow that tragedy to be repeated further downstream. I urge the Subcommittee to include the previous ban on using any funds to study or to construct the San Luis Drain or any other mechanism which would transport agricultural wastewater from the Central Valley to the Sacramento-San Joaquin Delta.

Kesterson Reservoir and Drainage Studies: Repayment of Costs

My colleagues on the Subcommittee are aware that the Bureau of Reclamation recently provided the Congress with its report concerning the past and anticipated future expenditures for the Kesterson Reservoir Cleanup Program and the San Joaquin Valley Drainage Program. This report was requested by the Conference Report accompanying the Energy and Water Development Appropriation Act of 1991. Expenditures made since 1985 and considered in the report total approximately $80 million.

The Bureau's report notes that current law requires that a substantial portion of expenditures made for Kesterson cleanup and drainage study activities must be reimbursed by project beneficiaries. The report also suggests that Congress may wish to consider alternative plans for some of these expenditures, including the alternative of making some of the costs nonreimbursable.

One of my highest priorities is to make sure that the events at Kesterson Reservoir are never repeated. I also believe that the costs of the cleanup and the related drainage studies should be properly and fairly allocated. I wish to assure my colleagues on the Subcommittee that I intend to work closely on these issues with the Chairman of the Subcommittee on Water and Power Resources.

Upper Colorado River Basin Fish Recovery Program

I strongly support the Bureau of Reclamation's participation in the Recovery Implementation Program for endangered fish in the Upper Colorado River Basin. For FY 1996, the Bureau has requested $6,373,000.

This program provides the Congress with one of the best examples of how the Endangered Species Act is supposed to work. With support from this Committee, the Recovery Program has brought together the states, water users, environmentalists, power users, and Federal agencies in the Upper Colorado River Basin. They are solving problems. They are finding ways that Western farmers who use water from Federal projects for irrigation can work with the Endangered Species Act. And they are doing it in a way that ensures the prosperity of the farmers with minimal cost to the Federal government.

The participants in the program have real success stories about how we can resolve endangered species conflicts. I urge my colleagues on this Subcommittee to support the continuation of the Recovery program.

Animas-LaPlata Project

I would also like to address my concerns regarding the proposed funding levels for the Bureau of Reclamation's Animas-La Plata Project. The FY 96 budget request includes $4,879,000 for construction of the Animas-La Plata Project in southwestern Colorado and northwestern New Mexico. This project was originally authorized in 1968, and Congress later agreed once again to build this project as an integral part of the 1988 Colorado Ute Water Rights Settlement Act.

I opposed the 1988 Settlement Act because the Indian Tribes will only receive water in settlement of their claims if the Bureau's Animas-La Plata Project is built. I argued at the time that the Tribes should not have to rely on a water supply from a marginal Bureau of Reclamation project to settle their water rights claims. I stand by that assertion today. The tribes should not have to rely on a marginal water project like Animas to settle their claims to scarce water supplies in an arid environment.

The Animas-La Plata Project was a bad idea in 1968; it was a bad idea in 1988; and it is a bad idea today. If funds continue to appropriated for construction of this project, this Committee will see the construction of a wasteful water project that will never deliver a drop of water to Indian communities.

Though fiscal year 1995, Congress has wasted $53,075,011 on the Animas-La Plata Project. Has any water been delivered from this expenditure of $53 million? No. There are environmental problems that will not be resolved for years, and there are economic and financial issues that are even more serious. Ultimately, I expect this project will be abandoned because of lack of support for unjustified Federal irrigation subsidies to non-Indian farmers. If Animas-La Plata is built, we will be spending $7,664 of Federal taxpayer dollars ***per acre*** to build an irrigation project. Repayment of these costs over 50 years by project beneficiaries is a myth, and all Members of this Committee should be aware of that fact. I hope this Committee will agree that scarce Federal funds should be directed to real energy and water development needs throughout the United States and not to a wasteful water project such as Animas-La Plata. I urge the Committee to delete the $4,879,000 requested in the Bureau of Reclamation's FY 1996 budget request for construction of the Animas-La Plata Project.

I wish to emphasize that I am not alone in expressing concerns about the continued construction of Animas-La Plata. I would be pleased to supply the Committee with copies of correspondence from the State of New Mexico, the Environmental Protection Agency, the Sierra Club Legal Defense Fund, and the Southern Ute Grassroots Committee. I take particular note of the testimony provided to this Committee on March 22, 1995 by the Southern Ute Grassroots Committee because the Chairman of that committee is a Member of the Tribal Council of the Southern Ute Tribe. Many members of the Tribe now understand that the Animas-La Plata Project will never be able to deliver the wet water they have been told to expect since 1988. The Animas project is a bad dream except for the small number of water attorneys, land developers, and non-Indian irrigators that will benefit from the unjustified Federal expenditure and lavish subsidies. Congress has already wasted over $53 million on Animas. I urge the Committee to stop this unjustified extravagance now.

Mr. Chairman, I thank you for the opportunity to address the Subcommittee this morning.

Mr. BILBRAY. Thank you, Mr. Chairman. I want to first point out that, to the former chairman that my father grew up in the north edge and just off of Dolphin Island in Monroeville, Alabama.

Mr. MYERS. Everybody got out of Alabama, it sounds like.

Mr. BEVILL. Great area, yes, sir.

Mr. BILBRAY. Actually, I have got to say that these projects are sort of interesting, because Mr. Bevill may not remember, but there was a 26-year-old mayor in 1978, who stood before this committee, and asked for funding for one of these projects, with a member named Representative Lionel van Dearling. And so it is nice to be back.

But, Mr. Chairman, this is an item—I have two items. It is sort of interesting, because the design of the Army Corps of Engineers on one, in a place called Mission Bay, which many of us here will go see next year at the Republican Convention, was designed back in the 1960s with a major flaw. The major flaw being that it was designed more like it was built behind Dolphin Island than into the Pacific Ocean.

There was a major swell action that came right up the channel and damaged the 2,000 plus boats that were anchored in the harbor. And as a temporary fix, because you had a lot of people living on these boats, the Army Corps went in and put in wooden pilings. These wooden pilings were supposed to be just a temporary buffer. And what has happened now is that buffer is falling apart. Sections of those pilings are breaking loose and going into the boats and into the harbor.

What we are concerned about is an abandonment of this project at this time is not just walking away from a mistake that was made in the 1960s, but also walking away from a temporary structure that is dismembering itself right now and being dismembered by the Pacific swell.

We need $2 million to build a permanent riprap structure and replace the temporary wooden one. The local community is putting in a million dollars to be able to address this problem. This was an Army Corps mistake. Mistakes happen. But to walk away from, first of all, the mistake that was done in the design in 1960s, and then walk away from the temporary structure, without removing it, without doing anything and creating the hazard that exists today, I think is something that can't be acceptable.

The other project I would like to address, Mr. Chairman, is one that is really a by-product of a treaty that we signed with Mexico to build the Rodriguez Dam system in Mexico during the 1930s. And with us because of that dam, the natural sand sediment that comes down the Tijuana River Valley does not reach the ocean. We get a lot of things coming down the Tijuana River Valley, but it is not the type of things we look forward to in Southern California.

With this project, what we are asking for is a study to where the dredging operations that are in San Diego Harbor, rather than taking the sand out and dumping it offshore and wasting this resource, we are looking at recycling this resource, taking it down the coast, dropping it off at the recreational beaches, dropping it off where homes are being attacked right now with major storms.

And so it really is a study to be able to look—we are looking at about $400,000 to recycle what we have, utilize what we have, but also not walk away from the problems that we created with well-intentioned but misguided strategies.

And with that, Mr. Chairman, I would like to make sure that in the next year I can come back here and say that 26-year-old kid who stood before the Chairman at that time actually finally got this project taken care of, and the citizens of San Diego County can say the Federal Government finishes what it starts and does it right.

[The statement of Mr. Bilbray follows:]

BRIAN P. BILBRAY
49TH DISTRICT, CALIFORNIA

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HEALTH AND ENVIRONMENT

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TESTIMONY - THE HONORABLE BRIAN P. BILBRAY
ENERGY AND WATER APPROPRIATIONS SUBCOMMITTEE
MARCH 29, 1995

Mr. Chairman, I appreciate the opportunity to testify before your committee on two projects which are of great importance to my congressional district.

The first project I would like to discuss is the timber pile breakwater at Quivira Basin in San Diego, California. The Army Corps of Engineers originally constructed the entrance and small craft harbor at Quivira Basin in Mission Bay. During the heavy winter storms of 1977-78, severe damage was incurred to the entrance channel, as well as boat and dock damage in Quivira Basin. Because of this initial "design deficiency" by the Army Corps of Engineers, a temporary timber pile breakwater was constructed in 1979. For the past decade, substantial damage to the area has occurred at Mission Bay.

The Los Angeles District U.S. Army Corps of Engineers recommended to headquarters that Fiscal Year 1995 funds be used to temporarily repair the timber pile breakwater. At that time, the Corps estimated the cost at $270,000. However, the temporary construction was never completed in FY 1995 because the cost was grossly underestimated, with the actual cost totalling $500,000. Currently, the Los Angeles District is recommending a more permanent solution, consisting of replacing the failing timber pile structure with a rubblemound breakwater. The local project sponsors are prepared to assume their share of construction costs ($1.2 million), with the federal government cost-share comprising the remaining $2.2 million.

Then, President Clinton's FY 1996 Budget stated that "in an effort to continue streamlining the federal government and phase out the Corps role on smaller projects, the budget contains only new starts for projects of national significance". While I am generally supportive of efforts to reduce the role of the federal government, I strongly believe that the Army Corps of Engineers bears the responsibility for the proper completion (or in this case, correction) of a project of its original creation which has been shown to be "design deficient". Further, this project is clearly not "new", and as such should be completed by the Corps as soon as possible.

Also, there is a question of liability. There are close to 2,000 boats harbored in this region. Many of the boats are the primary residence of their respective owners. In the inevitable event of the failure of the existing and dilapidated timber pile breakwater, there is no question as to where liability would rest for the millions of dollars in property damage, to say nothing of the potential loss of life. Mr. Chairman, early in this Congress I met with

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Dr. John Zirschky, the Deputy Assistant Secretary of the Army Corps to discuss these aspects of this important project. I am eagerly awaiting a response, and had hoped to share that information with you here today. I would ask that Mr. Zirschky's response, when available, be entered into today's hearing record at the appropriate point.

Mr. Chairman, I respectfully request that this project be properly funded and expeditiously completed, so that further damage and potential tragedy is averted.

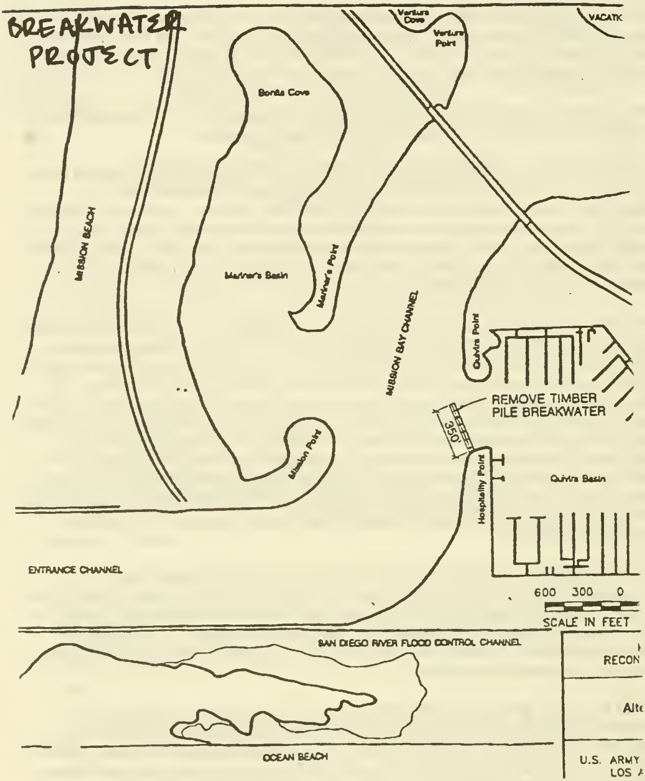
The second project I would like to address is the Silver Strand Shoreline in Imperial Beach, California. The cities along the Silver Strand have expended substantial funds to try to protect their coastal resources and adjacent developments. However, continued erosion has resulted in these areas being more vulnerable to damages from coastal storms. Imperial Beach has experienced severe damage during storms occurring during the winter of 1982-83 and more recently, January 1988, which resulted in these areas being included as part of Federal Disaster Area Declaration.

The Corps of Engineers has completed beach erosion control studies in the past as published in House Document Number 399 in the Second Session of the 84th Congress, as well as House Document Number 456 in the Second Session of the 86th Congress. These studies resulted in recommendations of federal improvements to improve shore protection. As a result of these studies, a federal beach erosion control project for the City of Imperial Beach was authorized for construction by Section 101 of the River and Harbor Act of 1958 (Public Law 85-500). The construction of this authorized project was terminated in 1985 in compliance with a federal court decision that resulted from opposition to that project alternative. A number of other alternative plans had been found to be feasible in previous Corps reports, and a recent review of this project by the Corps would allow it to determine if there is a federal interest in one of these alternative plans to reduce the storm damage potential at this time.

The Los Angeles District Corps of Engineers is in the process of completing the reconnaissance phase of the feasibility study. The study indicates that existing beaches are severely eroded, and that there is potential for coastal storms to cause damages in excess of $10 million to backshore development. The study also indicates that shore protection improvements of $8 to $10 million appear economically justified, and are in the longterm interests of the federal government.

Funds to proceed with the feasibility study, however, have not been included in the President's budget for Fiscal Year 1996, based on the Administration's view that shore protection projects should be the responsibility of local communities and the state. Federal assistance is necessary for these projects, as the high costs are beyond local capabilities. Therefore, the City of Imperial Beach is requesting $400,000 in FY 1996 to conduct a General Reevaluation Report for federal shore protection improvements along the Silver Strand Shoreline.

Mr. Chairman, I appreciate your consideration of these projects and thank you for the opportunity to testify before your committee.


BREAKWATER PROJECT
Ventura Cove
Ventura Point
VACATI
Bonita Cove
MISSION BEACH
Mariner's Basin
Mariner's Point
MISSION BAY CHANNEL
Quivira Point
REMOVE TIMBER PILE BREAKWATER
350'
Mission Point
Hospitality Point
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Mr. BEVILL. If I may just make a quick statement, Mr. Chairman. I just want to say, Brian, you know, we have gotten some rules recommended on flood control projects, instead of the local government paying 25 percent and the Federal 75, they reversed it. Now, with the help of all of the California delegation, we are not going to let that go into effect.

Mr. BILBRAY. I just want to make sure that we do not walk away from a project that we have three-quarters done.

Mr. BEVILL. Well, you are right, and flood control is, I think, the most important thing when you are talking about saving lives, you know, that is what we are talking about. We can't put a value on that, but even the damages, it runs—every dollar invested runs—saves $6.

Mr. BILBRAY. I think so. Mr. Chairman, I just want to make sure that we clarify that these structures were not built based on an assumption that the Federal Government had to come pull them out. What I am asking is items where the Federal Government has made a mistake to fix that mistake that they initiated rather than just walking away from it. That is why I support these two items out of all the items in San Diego County.

Mr. MYERS. We recognize that. We were here when that happened, we made our contribution, so we share your concern.

Mr. FAZIO. Very good. We are about halfway through, and we are about a third of the way through the members who want to speak, so let me reiterate the need for brevity.

Let me go to Ken Calvert.

Mr. CALVERT. Thank you, Congressman Fazio. Thank you, Mr. Chairman. I know you have a lot of folks here so I'll keep my remarks brief.

You will be hearing testimony later from several of my constituents, supervisor John Tavaglione from Riverside County, and Ken Edwards, the head of our county flood control district, who will testify on behalf of the Santa Ana Mainstream project, and the feasibility studies for the Norco Bluffs and the Whitewater Basin. Representatives from the Elsinore Valley Municipal Water District, Eastern Municipal Water District Jurupa Community Services will be testifying on behalf of several reclamation projects in Riverside County.

All these projects have benefited my district and all of Riverside County by providing water resources, environmental protection to endangered species and wetlands and employment opportunities. I strongly support these projects and urge your subcommittee to support them as well.

Additionally, Mr. Chairman, I would encourage your subcommittee to increase the budget appropriation for the administration of small reclamation projects program by the Bureau of Reclamation from 425,000 that the President requested to 600,000, in accord with the California Water Commission's recommendations.

The SRPA program is one of the best programs this government has. It provides funding for critical infrastructure and jobs. I would ask your subcommittee consider fiscal year 1996 the continuation of appropriations for the following California SRPA projects. Temescal Valley Water project, Chino Basin Desalination project, the Salinas Valley Reclamation project, and the Castroville Irrigation Supply project, along with the San Sevaine Creek project.

Again, Mr. Chairman, I thank you for the opportunity to speak, and encourage the support for these projects which will have significant assistance to our State.

So thank you.

Mr. FAZIO. Thank you for your statewide perspective, Ken. It is great.

Steve Horn, with a great big port in his front yard, is with us.

[The statement of Mr. Calvert follows:]

U. S. House of Representatives
Committee on Appropriations
Sub-committee on Energy and Water Development

Statement by Representative Ken Calvert
March 29, 1995

Thank you, Mr. Chairman.

I know you have many folks to hear from today, so I will briefly summarize my projects and respectfully ask unanimous consent that my statement be entered into the record.

You will be hearing testimony from several of my constituents later today, including representatives from Riverside County Flood Control District who will testify on behalf of the Santa Ana Mainstem project, and feasibility studies for Norco Bluffs and White Water Basin, along with representatives from Elsinore Valley Municipal Water District, Eastern Municipal Water District and Jurupa Community Services who will testify on several worthwhile reclamation projects located in Riverside County.

All of these projects have benefited my district and all of Riverside County by providing water resources, environmental protection to endangered species and wetlands, and employment opportunities. I strongly support these projects and urge your sub-committee to support them as well.

Additionally, Mr. Chairman, I would encourage your sub-committee to increase the budget appropriation for administration of the Small Reclamation Projects Act program, by the Bureau of Reclamation, from $425,000 that the President requested to $600,000 in accord with the California Water Commission's recommendation.

The SRPA program is one of the best programs our government has. It provides funding for critical infrastructure and jobs. I would ask that your sub-committee consider for FY 1996 the continuation of appropriations for the following California SRPA projects: Temescal Valley project, Chino Basin Desalination project, the Salinas Valley Reclamation project and the Castroville Irrigation Supply project, along with the San Sevaine Creek project.

Again, Mr. Chairman, I thank you for the opportunity for speaking this morning and encourage your support for these projects which all have significant merit and will give a much needed boost to an economy that has been ravaged by floods, earthquakes, fires and defense and aerospace cutbacks.

Page 2 -- Rep. Calvert's testimony

(The following is to be added into the record.)

The first project I would like to discuss is the **Santa Ana Mainstem** project. The Water Resources Development Act of 1986 authorized the Santa Ana River -- All River project which includes improvements along the river in Orange County, enlargement of Prado Dam and Reservoir near Corona, California, construction of a new dam (Seven Oaks) near the entrance to Santa Ana Canyon, improvement of the Oak Street Drain Channel in Corona, improvement of Santiago Creek in Orange County and various mitigation features as set forth in the Chief of Engineers' Report to the Secretary of the Army. The Boards of Supervisors of Orange, San Bernardino and Riverside Counties are in support of this needed project and have so stated in past resolutions to Congress.

I support the President's request for **$70.240 million** for the Santa Ana Mainstem construction and urge the Committee to approve the funds in the Fiscal Year 1996 appropriations. I thank the Committee for their continued support of this project.

The second project for which I would like to offer my support is the **Norco Bluffs** feasibility study. The Santa Ana River passes along the northerly border of the City of Norco. Norco is situated on a bluff that forms the left bank of the river. Flooding in 1969, 1978, and 1980 have seriously impacted the bluffs. One family residence has been destroyed to date and without the Army Corps of Engineers help, more could be threatened.

A provision of the Water Resources Development Act of 1990 directed the Secretary of the Army to conduct a study of the feasibility of improvements along the Santa Ana River at Norco Bluffs to prevent further damage to the bluffs by the river. The Corps found sufficient justification to proceed with a feasibility study in its reconnaissance study. The total feasibility study costs are estimated to be $1.86 million dollars. Congress has appropriated $750,000 to date for the study. I request the sub-committee to approve **$375,000** in Fiscal Year 1996 appropriations to continue the feasibility study of the Santa Ana River at Norco Bluffs.

Though not in my district, I would like to add my support for the Corps to continue a feasibility study for the Whitewater River Basin in the Coachella Valley in Riverside County. $370,000 is needed to continue the study.

Mr. Chairman, I very much appreciate your continuing support of the **Eastern Municipal Water District's unique wastewater reclamation project** in southwest Riverside county. This project has proven its ability to provide significant groundwater recharge, environmental enhancement, water conservation and recreational benefits. This project is included in the President's budget and is supported by the California Water Commission. I respectfully request your continued support of the appropriation of **$6 million** as set forth for Fy 1996.

Additionally, Mr. Chairman, your sub-committee has before it funding requests for four projects in the state of California, under the Small Reclamation Projects Act (PL84-984) Loan Program. I respectfully request your continued support of the appropriations for FY 1996 for these projects. They are: Temescal Valley project -- $1.397 million; Chino Basin Desalination project -- $2.717 million; Salinas Valley Reclamation project -- $1.98 million; and the Castroville Irrigation Supply project -- $2.71 million. In addition, there is the San Sevaine project in San Bernardino County which will complete their project report shortly, and I would request $250,000 in the Fy 1996 appropriations budget to allow them to move forward with their work.

Mr. HORN. Thank you very much, and thanks to you, Vic, as well as the current chairman and the past chairman for your caring about the two largest ports in the country, Los Angeles and Long Beach. Let me just briefly note some of the projects.

The major one on our list this year is the Los Angeles County Drainage Area Flood Control project, otherwise known as LACDA. The administration's request we agree with, $11.3 million to continue construction, $3.4 million for annual operation. The minimum estimate for this project is going to be roughly $300 million. And you will be hearing from the environmental community who would like their greenway concept. Friends of the Los Angeles River have submitted an alternative proposal. I have asked the Corps of Engineers to carefully study that proposal.

We need to move forward, though, on this; because otherwise FEMA will be issuing a regulation which will have mandatory insurance fees on thousands of homes, which are very low-income people living there, up and down the river. So we would appreciate your help.

The Central Basin Groundwater project you will hear about. The administration has $375,000 for a study. That is a major problem in our area, to head off some of the underground water in the San Gabriel Valley, the Central Basin at Whittier Narrows.

We would also like to keep our model for the Long Beach Los Angeles Harbor up at Vicksburg. The administration has recommended the money for that. Then the 2020 dredging plan, Long Beach is proceeding with the dredging to 76 feet of its main channel, and the President's budget does contain sufficient funding for that.

Port of Los Angeles construction: The President's budget contains $100,000 for that construction oversight of the Port of Los Angeles activities. Recently a very good agreement has been signed by the Port and the Corps. The next one is the wave gauge data acquisition construction, in the 2020 plan of the Port of Los Angeles, and that is—they are asking $325,000 for that.

We had a real hard time recently with the floods and the dredging that we needed on the Los Angeles River. Navigation was shut down. We have had buoys damaged and marina mooring facilities were damaged.

Last is the beach erosion reconnaissance study. $200 million worth of homes are at stake and most believe that it has been caused by the Federal breakwater. Five million dollars has been put up by the City of Long Beach to try to solve the problem. We would like $300,000 for the Federal Government to look into what is the cause and how you solve it. Because we haven't solved it yet with the city's own five million. We appreciate all you have done in the past and we thank you for your interest in California.

Mr. FAZIO. Thank you, Steve.

Next to a member of the Appropriations Committee from San Francisco, Nancy Pelosi.

[The statement of Mr. Horn follows:]

Congressman Stephen Horn

testimony before the

Subcommittee on Energy and Water testimony

March 29, 1995

I will try to keep this short and simple, though, as the representative of the largest port complex in the nation, my laundry list tends to get a little long. Thankfully, most of the projects on which I will speak are included in the President's budget.

(1) Los Angeles County Drainage Area (LACDA) flood control project:

- The Administration has requested $11.367 million to continue construction of the LACDA project, and $3.413 for annual operation and maintenance of the existing system. I strong support this funding request. While there has been a great deal of interest in the community regarding what type of flood control project is built, the minimum estimate of the cost to complete this project is approximately $300 million. I am sure that this Subcommittee will be hearing from the environmental community, who would like to see this funding going only to their greenway concept, which preliminary estimates price at somewhere in the range of $700 million. I have made every effort to ensure that the Friends of the Los Angeles River (FoLAR) alternative proposal is given a thorough review, and will continue to do so. I am not committed to any one project or another, but the residents around this river do not have adequate flood control protection. Moving forward with flood protection is critical. On top of this threat to life and property, the residents are facing the imposition of an onerous requirement to buy flood insurance and to restrict new construction, while will have a devastating impact on the local economy. I ask the Subcommittee to support this modest level of funding.

(2) Central Basin Groundwater Project

- The Administration's budget includes $375,000 for a feasibility study to determine possible remedial actions on contaminated groundwater seeping through the Whittier Narrows from the San Gabriel Valley in the Central Basin. This modest level of funding will help avert the potential expenditure of millions of dollars in cleanup costs that would be necessary if these contaminants are allowed to seep into our drinking water.

(3) Long Beach-Los Angeles Harbor Model Maintenance:

- The President's budget contains $160,000 for upkeep to this hydraulic model of the Ports of Long Beach and Los Angeles in Vicksburg, Mississippi. The model is critical to the ongoing expansion plans at both Ports.

(4) 2020 Plan Dredging at the Port of Long Beach:

- Long Beach is proceeding with dredging its main channel to 76 feet, as authorized under section 201(b) of the Water Resources Development Act of 1986. The President's budget contains $750,000 for planning, engineering, and design of this dredging project. Actual dredging is slated to begin in 1997.

(5) Port of Los Angeles Construction of the Stage 1 Project:

- The President's budget contains $100,000 for the Corps of Engineers construction oversight of the Port of Los Angeles activities under the terms recently signed credit agreement between the Port and the Corps of Engineers. I urge support of this funding, which will allow sufficent Corps resources to be assigned to this oversight task.

(6) 2020 Plan - Wave Gage Data Acquisition (Construction)

- This program began in 1987 to develop data for the design of the 2020 plan port expansion and navigation improvements, and has received federal funding in prior years. This program now performs important construction monitoring and model verifications for ongoing expansion activities. I am supporting the Port of Los Angeles' and the California Marine Affairs and Navigation Conference request of $325,000 for this program.

(7) Dredging at the mouth of the Los Angeles River

- We have tremendous silt problems at the mouth of Los Angeles River. This last winter's storms actually closed this area to commercial and recreational navigation, while also destroying or damaging navigation buoys, marina mooring facilities, and dredging equipment. While minimally cleared, it remains a problem and needs to be addressed both now and on an annual basis. I am requesting $3 million for this dredging operation.

(8) Beach Erosion Reconnaissance Study:

- $200 million worth of homes are threatened by a persistent erosion problem on Peninsula Beach in Long Beach, erosion which I believe is caused by the federal breakwater. The City of Long Beach has already invested $5 million over a period of 14 years to replenish this beach. I am requesting $300,000 for a federal reconnaissance study, which would allow examination of the "focusing" effect that the federal breakwater has on this beach.

Thank you for your time and attention to these issues. I look forward to working with the Subcommittee, and will be happy to provide any additional information that you might need in your consideration of these requests.

Ms. PELOSI. Thank you very much, Vic.

Mr. Chairman, Members of the committee, Mr. Bevill, thank you for the opportunity to participate in today's California day and for your responsiveness in a bipartisan way that this committee has always shown to our great State.

I am pleased to be here to testify on behalf of some important water projects in my district, but before I do, I want to associate myself with Mr. Herger's remarks, Mr. Dooley's remarks, Mr. Fazio's remarks, and I was pleased to hear yours, Mr. Bevill, about the Army Corps of Engineers. The budget proposal is unacceptable, and the match is unacceptable, and I want to go on record in support of the comments of our colleagues made earlier on that.

As far as the Bay Area is concerned, on the question of dredging Bay Area ports, Mr. Miller referenced them in support of our dredging process that we are going through in the San Francisco Bay area. I support continued funding for the Sonoma Baylands project, funding of $500,000 for the Corps of Engineers is required to continue the construction phase this year. This project serves the economic purpose of promoting commerce.

Mr. Chairman, it is also responsible for 100,000 jobs and it serves to restore wetlands through the beneficial reuse of dredge material. This is the result of much compromising on the part of the economic and environmental forces coming together in our community.

I also support funding of $150,000 for the Corps of Engineers study of Leonard Ranch as a disposal site and $150,000 included for completion of long-term management study to develop a strategy on Bay Area dredging. The Ocean Beach erosion problem remains under study by the Corps. We would like to finish that study and I support funding of $125,000 for this ongoing analysis of the erosion that continues to effect Ocean Beach.

Funding for the harbor surveys is $340,000, as well as annual operations and maintenance of San Francisco Harbor in the amount of $4 million is also requested.

I would also like to associate myself with Mr. Herger's remarks about the Winter Run Chinook Salmon Captive Broodstock program. The committee provided funding the past two years for the program, which was authorized in 1994. I am pleased to report that we are making progress in accomplishing the stated goal of restoring this endangered species.

Thank you, Mr. Chairman, Members of the committee, for your consideration. I appreciate your time and attention.

[The statement of Ms. Pelosi follows:]

STATEMENT OF REPRESENTATIVE NANCY PELOSI
BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER
COMMITTEE ON APPROPRIATIONS
MARCH 29, 1995

Mr. Chairman, members of the Subcommittee, thank you for the opportunity to participate in "California Day" before the Subcommittee. I am pleased to be here and to testify on behalf of some of the important water projects in my district.

On the question of dredging Bay Area ports, I support continued funding for the Sonoma Baylands project. Funding of $500,000 for the Corps of Engineers is required to continue the construction phase this year. This project serves the economic purpose of promoting commerce and it also serves to restore wetlands through the beneficial reuse of dredge material.

I also support funding of $150,000 for Corps of Engineer's study of Leonard Ranch as a disposal site, and $150,000 included for completion of the Long Term Management Study to develop a strategy on Bay Area dredging.

The Ocean Beach erosion problem remains under study by the Corps and I support funding of $125,000 for this ongoing analysis of the erosion that continues to affect Ocean Beach. Funding for harbor surveys -- $340,000 -- as well as annual operations and maintenance of San Francisco Harbor -- in the amount of $4 million -- is also requested.

The Committee has provided funding in the past two years for the Winter Run Chinook Salmon Captive Broodstock Program which was authorized in 1994 and I am pleased to report that the program is accomplishing its stated goal of restoring this endangered species. This year, I am requesting $300,000 from the Bureau of Reclamation for the purpose of funding this program.

Another important study in need of funding this year is the Water Reclamation Study for the City of San Francisco. The study was authorized in 1993 as an innovative way to provide an alternative supply of irrigation water to California's Central Valley region by exporting recycled water from the Bay Area.

The study has been under way for a year and Phase I is expected to be completed in October of this year. Full funding for fiscal year 1996 for the study is $1.5 million from the Bureau of Reclamation. The President's Budget includes $700,000. I hope the Subcommittee will determine a reasonable amount to allow the study to continue on schedule.

Thank you, Mr. Chairman, members of the Subcommittee for your consideration of my requests. I appreciate your time and attention today.

Mr. FAZIO. Thank you, Nancy.

Mr. MYERS. If I may be recognized at this point. Nancy and each of you, while we do not support the administration's proposal to change the rules taking care of flood control and beach erosion, it would be on the entire House if that should be changed. So it is going to be all of our decision, not just this committee, to make the decision to change the rule.

But this committee, I don't think any Member supports what the administration is proposing. But legislation would have to be changed, and the full House would make that decision.

Mr. FAZIO. It may go to the Public Works Committee.

Now a colleague from the Natural Resources Committee, key member from the Central Valley, Richard Pombo.

Mr. POMBO. Thank you, and Mr. Bevill, neither my mother or father were born in Alabama, but we did buy a horse there once. Nice happy stallion.

Mr. BEVILL. That qualifies you, all right.

Mr. MYERS. At least you bought it. You didn't steal it, did you?

Mr. BEVILL. Are you sure it wasn't a stolen horse that you bought?

Mr. POMBO. No, sir. We paid for it. I don't know where it came from before that, but we did pay for it.

I would like to just start off by recognizing that several of my constituents will testify later today, including Supervisor George Barber, City Council Member Duane Isetti, and the General Manager of Stockton East Water District, Mr. Ed Steffani. And they will go into greater detail on a number of the projects that are very important in my area.

I will be brief because I know that both Vic Fazio and Frank Riggs are very familiar with a number of the problems that we have in my part of the Central Valley. But the Stockton East Water District has been an ongoing problem. They have invested a considerable amount of money, local money, in a project that as of yet has not—the Federal Government has not met their responsibilities in delivering water for that project.

And in just a case in point, they have spent $65 million of local money in a conveyance delivery system for the City of Stockton and San Juaquin County that they have yet to put a drop of water through. And it has created some little internal water wars in my district, because of that, the Fulsom South Canal, which is an ongoing project that Mr. Fazio is very familiar with and has worked on in the past.

But one project that has all of a sudden become an extremely high priority in my area is a flood control project that involves the City of Stockton. All of a sudden, it appears as if FEMA is going to put the entire City of Stockton and the surrounding area in a floodplain, which is an area of about 300,000 people. It is an area that has over 13 percent unemployment. It is a historically high unemployment area.

The fact that we would be now placing the entire area in the floodplain would be devastating to the local economy. It would completely stop any chance for economic development in my district because of that. It would also, as Mr. Horn stated earlier, have an effect on the homeowners who are there because of the increased insurance costs in an attempt to solve a very short-term problem. The city and the county have entered into an agreement amongst themselves to spend close to $40 million to fix their flood control problems that they have, which will be done within the next two-and-a-half to three years. And if we go ahead with that project, it will be devastating to the local economy. And this is something I am very concerned about.

They are asking for an appropriation so that we can proceed with a study on the—through the Army Corps of Engineers on the flood control in the area.

All of the information is in my complete testimony, which will be submitted for the record. And I am sure that in the future we will have the opportunity to work together on these programs and I thank you very much.

Mr. FAZIO. Thank you, Richard.

A new Member who has discovered the importance of flood control since she has been elected, Zoe Lofgren of San Jose.

[The statement of Mr. Pombo follows:]

RICHARD W. POMBO
11TH DISTRICT, CALIFORNIA

COMMITTEE ON AGRICULTURE

COMMITTEE ON NATURAL RESOURCES

COMMITTEE ON MERCHANT MARINE
AND FISHERIES

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**Statement
by
The Honorable Richard W. Pombo
before the
Subcommittee on Energy and Water Development
of the
House Committee on Appropriations
on
March 29, 1995**

Thank you Chairman Myers and Members of this Subcommittee for the opportunity to appear here today at the annual "California Day" hearing for various projects that I believe are instrumental in providing long-term solutions to the serious water issues faced by my 11th California Congressional District and the entire Central Valley region.

I am grateful to my California colleagues on this Subcommittee, Mr. Riggs and Mr. Fazio, for their commitment and support in finding ways to address the needs of the California water community in a bipartisan fashion. Given the difficult fiscal climate in Washington, and the competing interests in the area of energy and water development, I can assure you that I do not envy the task which is before you today and in the coming weeks.

Let me start by recognizing the witnesses from my district, which covers most of San Joaquin County and the southernmost regions of Sacramento County. Testifying today for San Joaquin County is my good friend, Supervisor George Barber, who will be addressing a number of issues which are important to the county. On behalf of the City of Stockton, Councilmember Duane Isetti will be testifying today as well. Mr. Isetti will speak in support of the Stockton Metropolitan Area Study. You will also hear from Mr. Edward M. Steffani, General Manager of the Stockton East Water District.

All three of these distinguished witnesses will be supporting various projects, all endorsed by the California Water Commission, including: the Stockton Metropolitan Area Study, the American River/Folsom South Optimization Study, the South Delta Barriers Project, authorization legislation for which I co-authored last year (H.R. 2963), and the Auburn Folsom South Unit.

I might also mention that my friends from the Port of Stockton will be testifying later today as part of the California Marine Affairs and Navigation Conference.

Again, Mr. Chairman, I appreciate this opportunity to elaborate on a few of the issues that my constituents will be addressing at this particular hearing. First, I would like to address the concerns of the Stockton East Water District, which has focused on a few projects that seek to address the storage and delivery of water to the Stockton area and to help solve the serious environmental problem of groundwater overdraft and saltwater intrusion.

As you may be aware, we have been looking for solutions to these problems for many years. In 1983, the Stockton East Water District and the Central San Joaquin Water Conservation District entered into a contract with the Bureau of Reclamation for the delivery of Central Valley Project water from the New Melones Reservoir. These districts, along with the City of Stockton and the County of San Joaquin, built a $65 million conveyance with local funds to deliver this water. As my California colleagues are aware, we have not yet received any water. After making requests for the past three years, we are still waiting for the deliveries we contracted for with the Bureau of Reclamation.

At a time when California has only begun to recover from a series of devastating floods, it is possible that Stockton may not benefit in any way from all of this water. Even if some temporary supplies were made available to us, it is essential for the water customers in the Stockton area that reliable supplies and long-term solutions be achieved.

Last year the Appropriations Committee provided $400,000 for an American River Optimization Study of the Folsom South Canal. This investigation is critical to moving forward on a conjunctive use of the Stanislaus and American Rivers and is supported be the California Water Commission. The Folsom South Canal now stops at Rancho Seco. The conveyance from the New Melones Reservoir on the Stanislaus stops at the Stockton East Water District treatment plant.

The next logical step is for the American River Folsom South Optimization Study to explore the feasibility of conjunctive use with the possibility of offstream storage of South Gulch or Farmington Dam. However, the Bureau of Reclamation did not begin this study required by the FY 1995 Energy and Water Appropriation bill and **none** of the FY 1995 appropriations have been spent by the Bureau for this purpose. Mr. Chairman, I hope that your Subcommittee will appropriate these funds for FY 1996 and direct the Bureau to begin this essential work that is important to both the American River system and to Stockton and San Joaquin County.

As you will hear in greater detail today from **each** of my constituents, I also hope that you will provide $800,000 for a Stockton Metropolitan Area Study for flood control by the U.S. Army Corps of Engineers. As you may be aware, the City of Stockton and San Joaquin County were recently notified by FEMA that the existing flood control system does not provide adequate protection. Whereas most of the community was previously considered outside the floodplain, FEMA now proposes to designate as flood-prone the entire city and surrounding area of approximately 300,000 residents.

The City and County are moving ahead with plans to provide all the funding upfront, if necessary, to expedite the restoration of the flood protection system. Because most of the existing system was constructed and is maintained by the Army Corps of Engineers, the community needs the participation of the Corps in this effort. Immediate action is needed to ensure that the regional economy is not damaged by uncertainty related to potential flooding and costly long-term building requirements for a relatively short-term problem.

I understand that $800,000 is sufficient to begin the reconnaissance study of the metropolitan area streams. These funds can also be used to study the potential benefit of adding the Farmington dam as a component of Stockton's flood protection plans. However, priority should be given by the Corps of Engineers to provide flood protection for the Stockton metropolitan area.

This study is also important to help determine if the Farmington Dam could be used to store up to 160,000 acre feet of water. Farmington Dam is an earthen dam located along the conveyance from New Melones Reservoir. However, it is necessary to determine the seepage and whether it is necessary to raise the level of the dam. This is a Federal resource that is sitting dormant where there is a local need. I hope this Subcommittee will fund this project as I believe that it holds great promise for both conjunctive use and flood control.

In addition, Mr. Chairman, I am in support of the Sacramento Watershed Management Plan. This plan, spearheaded by the Sacramento Metropolitan Water Authority (SMWA), is a comprehensive approach to fixing the groundwater contamination problems that are of growing concern to all of us in the Sacramento region.

The Watershed Management Plan takes an innovative and cost-efficient approach that employs a mix of water resources management tools to mitigate further contamination of the groundwater supplies. For instance, overdrafting of groundwater has worsened the contamination problem. The Watershed Management

Plan proposes to help recharge the aquifers by creating a groundwater recharge/wetlands/riparian habitat area along the Consumes River in the southern part of Sacramento County. This wetlands area would involve the construction of recharge areas (ponds). As landowners in the area are supportive of this proposal, I believe that this dual-benefit approach could have application in similar areas across the country.

Another component of the Sacramento Watershed Management Plan is construction of an offstream storage facility. Its supply would come from surplus winter flow in the American River that would be diverted through the existing Folsom South Canal and pumped into the reservoir. These surplus flows could be utilized for agricultural purposes in the area.

The new Congress is taking a hard look at what changes can be made to optimize use of our limited resources. We are making a concerted effort to shift back to States and localities the flexibility and authority to determine what is best for them. The SMWA's Watershed Management Plan is a good example of a local jurisdiction that is committed to being a part of this process. Their project should become a showcase of what can be accomplished when all levels of government join together to forge new frontiers in water resources management to ensure a safe drinking water supply for our citizens now and for future generations and I urge your support of the plan.

Other California projects that merit consideration include a $3,000,000 request for the Bureau of Reclamation in fiscal year 1996 to advance work on a permanent new fish screen at Glenn-Colusa Irrigation District's Hamilton City Pumping Plant. Specifically, this allocation is needed to complete the design and engineering work and initiate construction on this important project.

Without such a committment of funds, construction will be delayed, causing continued pumping restrictions that will hold water deliveries by the District to just 65 percent of the District's full entitlement. Moreover, solving the fish passage problem at GCID is critically important to the recovery of the endangered winter run chinook salmon and, therefore, critically important to all water users throughout the Central Valley. The listing of the winter run chinook salmon is one of the main reasons that restrictions have been imposed on diversions from the Delta to meet the water needs of the San Joaquin Valley. Therefore, it is in the interest of all water users to ensure that the effort to provide permanent protection to winter run and other fish in the vicinity of the GCID main pumping plant proceeds as quickly as possible.

Also, Mr. Chairman, I would like to request that this Subcommittee provide the necessary funds to initiate design and feasibility studies to construct a siphon across Stony Creek and upgrade the GCID canal facilities, from within the funds made available in the bill through the Central Valley Project Restoration Fund. This project will enable the District to make a year-round water deliveries to the three National Wildlife Refuges in the GCID service territory as well as enable year-round water deliveries to other users in the District. These proposed upgrades will allow GCID to better serve the refuges and at the same time better serve our existing agricultural customers. This, and the other projects which I have mentioned, are the types of win-win activities that should be promoted in this year's Energy and Water Development appropriations bill.

My fellow colleagues, you will hear from the California Water Commission in support of most of these projects, as well as a number of other projects which I believe deserve your serious attention. I hope that you will give all of these requests serious consideration, as I believe that the development of water resources in California is one of the most important issues facing our state as we head into the 21st Century.

As always, I will be happy to work with you all, and other members, and answer any questions you may have about the merits of the projects that I have laid out before you, or any other of the projects that I am familiar with.

Thank you, again, for the opportunity to appear here today. I look forward to everyone's testimony.

Ms. LOFGREN. Thank you, Vic, and thanks to the subcommittee for your consistent support for reclamation and flood control projects in the Santa Clara Valley. The details of the projects I am supporting will be addressed later today by two local leaders, Trixie Johnson, the vice mayor of the City of San Jose, and Rosemary Kamei, who is the Chairwoman of the county water district that is the lead for local flood control projects.

I can personally attest to the need for additional work on flood control. Three weeks ago my district office was evacuated when downtown San Jose was under water. So I am here to talk about flood control as well as drought, which seems a bit ironic. But we in California suffer from both.

The flooding in San Jose certainly would have been much worse except for the projects that have already gone on. And I would urge and hope that the subcommittee could support the continuation and completion of the projects, specifically the Corps' Guadalupe River project for $8.1 million, as well as the Coyote and Berryessa projects for $12 million. And the feasibility study for the Upper Guadalupe River project for $285,000, as well as the Upper Pennitencia Creek project.

On reclamation, as you know, we have suffered from drought consistently in California. And the City of San Jose is moving forward aggressively on reclamation; a $9 million construction funding is sought for that item.

I note that the Silicon Valley is a center of economic growth and really I think vital to the region's economic future. It takes 10 gallons of water to produce one silicon chip. So we need to make sure we have a reliable source of water for that industry. Then we also need to make sure that that industry doesn't need to wade to work.

So thank you very much. I will be brief and allow others to speak.

Mr. FAZIO. Thank you very much, Zoe.

Now from Ventura County, Elton Gallegly.

[The statement of Ms. Lofgren follows:]

NEWS RELEASE FROM
CONGRESSWOMAN
ZOE LOFGREN

U.S. HOUSE OF REPRESENTATIVES

16th Congressional District *California*

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Statement of Congresswoman Zoe Lofgren
before the
Subcommittee on Energy and Water Development
of the
Committee on Appropriations
March 29, 1995

I would like to thank the Subcommittee for this opportunity to testify in support of the Santa Clara Valley Water District and City of San Jose's fiscal year 1996 requests, which will be presented later this morning by Trixie Johnson, Vice-Mayor of San Jose and Rosemary Kamei, Chairwoman of the Water District's Board of Directors.

Over the years, this Subcommittee has consistently provided funding for Army Corps of Engineers and Bureau of Reclamation programs in Santa Clara Valley, programs that have made a visible difference in the area.

I can personally attest to the need for flood control in the Valley; my own District office was evacuated during the recent floods. More drastic flooding was fortunately prevented by the already completed portions of the Corp's projects. Today, I am asking the Subcommittee to put a very high priority on continued funding for the Guadalupe, Coyote and Upper Guadalupe flood-control projects.

It seems ironic to discuss flooding and water reclamation together, but Santa Clara Valley relies on water recycling as a key part of a sustainable regional economy. By reducing treatment plant discharges and providing an alternative "drought-proof" source of water, South Bay Water recycling will preserve the natural and economic environment of San Jose and the high-tech industrial area of Silicon Valley. Without an adequate water supply, Silicon Valley will not be able to maintain its important industrial capability.

Today, I ask the Subcommittee for continued funding for the Corp's Guadalupe River project ($8.1 million) and the Coyote and Berryessa projects ($12 million), as well as $285,000 in feasibility study funding for the Upper Guadalupe River Project and $300,000 to initiate a feasibility study for the Upper Pennitencia Creek project.

Under the Bureau of Reclamation's program, I respectfully request an appropriation of $9 million for construction funding for the San Jose Area Reclamation Program, a necessary increase from the budget request that will allow the Bureau to maintain its authorized level of participation. I also seek continued feasibility study funding for the San Francisco Area Water Reclamation Study.

I thank the Subcommittee for giving me this chance to testify, and urge all of you to give these projects strong consideration.

# # #

Mr. GALLEGLY. Thank you very much, Vic. Tom, neither of my parents are from Alabama, but I went there to buy a horse, but Richard beat me to it.

Mr. BEVILL. You were lucky.

Mr. GALLEGLY. Mr. Chairman, neither of my parents are from Indiana, but I do have a Hoosier cabinet in my kitchen. So, Mr. Chairman——

Mr. FAZIO. What a bunch of suck-ups we have from California.

Mr. MYERS. Pretty good politicians, I would say.

Mr. GALLEGLY. We learned from the master.

Mr. Chairman, Members of the subcommittee, I appreciate the opportunity to express to you my strong support for certain flood control, coastal preservation, water reclamation and harbor dredging projects in Ventura County and Santa Barbara County in my district.

In recognition of the constraints on the committee's time today, and the comments that Mr. Fazio made relative to the way the priorities are established here, I will be as brief as possible and ask that a more detailed statement be accepted by the committee and made a part of the record.

I strongly endorse and ask the committee's favorable action on the following needed projects. Number one, $4 million for the Santa Paula Creek Flood Control project to initiate construction. Today we have Mr. Art Goulet, a personal friend of mine, long-time associate in Ventura County, the public works director for the County of Ventura, and he will be testifying in greater detail before the committee later today.

Number two, direct the Army Corps of Engineers to complete a cost-shared feasibility study to deepen the Federal navigation channels at Port Hueneme, and I ask the committee to provide a million dollars for the completion of that study.

Number three, provide $300,000 in funding to the Corps of Engineers for the Ventura Santa Barbara County's coastal shoreline protection study.

And number four, $2 million in Bureau of Reclamation funding as authorized for the Port of Hueneme water agency for development of a brackish water reclamation demonstration facility. Gail Pringle, President of the Channel Islands Beach Community Services District, and a member of the Port Hueneme Water Agency, will present a more detailed statement concerning this project to the committee later today.

Additionally, the administration's budget includes operation and maintenance funding for the Channel Islands Harbor, Port Hueneme and Ventura Harbor. I support those allocations. The disastrous winter storms that savaged coastal California, including my district, damaged harbor breakwaters, jetties, and substantially reduced the navigable depths of the harbor shipping channels.

Mr. Chairman, I appreciate the opportunity to appear before the committee today and ask for favorable consideration.

Mr. FAZIO. Thank you, Elton.

And on to the surfer in the delegation, Dana Rohrabacher.

[The statement of Mr. Gallegly follows:]

APPROPRIATIONS SUBCOMMITTEE

ON

ENERGY AND WATER DEVELOPMENT

MARCH 29,1995

THE HONORABLE ELTON GALLEGLY
MEMBER OF CONGRESS
23RD DISTRICT OF CALIFORNIA

Mr. Chairman, Members of the Subcommittee, I appreciate this opportunity to express to you my strong support for certain flood control, coastal preservation, water reclamation and harbor dredging projects in my Ventura and Santa Barbara Counties district in California.

These projects have become even more critical to my constituents who have suffered two federally declared flood and winter storm disasters in the past three months. Certainly the foresight of the Subcommittee in providing prior support for flood control and harbor navigation projects in my district helped to mitigate the extent of damage suffered. This important work must continue.

I strongly endorse and ask for the committee's favorable action on the following projects:

The Santa Paula Creek flood control project was originally authorized by Congress in 1948. Today I ask the committee's support for $4 million to initiate construction as recommended by a General Reevaluation Report approved by the Chief of Engineers. Initiation of construction would begin to remedy conditions which threaten public health and safety and pose a significant threat to public and private property. Some 4,000 homes, downtown Santa Paula's historic district and five of the community's seven schools are located in the flood plain addressed by this project.

Mr. Chairman, I ask the committee to direct the Secretary of the Army acting through the Chief of Engineers to complete a cost-shared feasibility study to determine the federal interest in modifying the existing federal navigational project at Port Hueneme, California. This study should include evaluation of the need for deepening Port Hueneme Harbor to accommodate potential and likely use of the harbor as a port-of-call by larger vessels and for the more efficient movement of present and future regional imports and exports. Timely completion of this feasibility study by the Corps will allow the port authority to meet the needs of the shipping community and further expand the region's economy. I ask the committee to provide $1 million for completion of this study.

I also ask the committee to provide $300,000 in FY 96 to the Secretary of the Army acting through the Chief of Engineers to initiate a reconnaissance study to determine the federal interest in measures to reduce storm damage potential to coastal development along the shores of Ventura and Santa Barbara Counties, California. The studies should include consideration of plans for utilizing sand management for beneficial storm damage reduction and other purposes using material from maintenance dredging of federal navigation projects located in these counties.

Severe erosion of protective beaches is causing backshore residential and commercial development to be exposed to wave attack from seasonal Pacific storms. Storms in 1978 and 1983 caused several million dollars in damage to several communities in the two counties, and continued erosion is causing many areas to be more vulnerable to damage from coastal storms. Sponsors of this study - a joint powers authority comprised of the two' counties and coastal cities - seek a comprehensive solution to this problem. I believe they deserve our help.

I request the committee provide $2 million in Bureau of Reclamation funding as authorized for development of a brackish water reclamation facility. This facility would be able to produce nearly 4 million gallons of water per day for the Port Hueneme Water Agency in serving a number of coastal communities including the Naval Construction Battalion at Port Hueneme and the Naval Air Weapons Station at Point Mugu. This funding would be provided in FY 96 under the authorization of Section 1605 of the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI),
P.L. 102-575.

Additionally, the Administration's budget includes operation and maintenance funding for Channel Islands Harbor ($890,000), Port Hueneme ($135,000) and Ventura Harbor (($2,288,000). I support these allocations. The disastrous winter storms that savaged coastal California, including my district, damaged harbor breakwaters and jettys and substantially reduced the navigable depths of harbor shipping channels.

I appreciate the committee's attention and ask for your favorable consideration of these projects so important to my constituents and the economy of our area of Southern California.

Mr. ROHRABACHER. Actually, Mr. Chairman, I was the best surfer in Congress until Brian Bilbray was elected last year. And he is the last one to be complaining about the Pacific swell, seeing that he rides it so often. But being consistent with the rest of the suck-ups, let me say this, that this sub——

Mr. MYERS. We are waiting.

Mr. ROHRABACHER. This subcommittee has been an exemplary in its bipartisanship over the years. I would like to tip my hat to Chairman Bevill, who, the gentleman that he is, he has the respect of people on both sides of the aisle. The way this subcommittee has been run, is really an example to the rest of the Congress.

And Mr. Chairman, as the new chairman, I know that you will follow along in that tradition.

Mr. BEVILL. Mr. Chairman, I wish you would give him more time, please.

Mr. ROHRABACHER. Well, with that said, I would like to express my support for the administration's request for $70 million for the Santa Ana River project. The Corps of Engineers has described this project and the Santa Ana River flood threat as the worst west of the Mississippi.

Since fiscal year 1990, this subcommittee has recognized the serious flood danger threatening the residents of Orange County, California, by providing the necessary funding to continue construction of the Santa Ana River mainstream project.

And by doing this so, this subcommittee has contributed and is continuing to contribute to protection of hundreds of thousands of lives that would be in jeopardy if this hundred-year flood ever happened; and the prevention of a major economic catastrophe that would sweep not only Southern California, but would be felt far beyond the borders of Southern California.

So I appreciate the previous support that we have been given for this project, and I join my colleagues in Orange County, Mr. Dornan, Mr. Packard, Mr. Cox, Mr. Royce, and Mr. Kim, in asking for your support for this project this year and support of the President's request.

Again, thank you very much. I appreciate all of you.

Mr. FAZIO. Thank you very much, Dana. This is certainly the year for California to appreciate flood control.

Sonny Bono, from one of the most arid parts of our State, in need of water always.

[The statement of Mr. Rohrabacher follows:]

Hon. Dana Rohrabacher

Statement before the House Appropriations Subcommittee
on Energy and Water Development
March 29, 1995

Mr. Chairman and distinguished Members of this Subcommittee, I thank you for the opportunity to testify today.

I have come before the Subcommittee to request assistance for an important project in Southern California -- the Santa Ana River Project. I want to expresss my support for the Administration's $70 million request for the Santa Ana River Project. The Corps of Engineers has described the Santa Ana River as the most dangerous flood threat west of the Mississippi.

Since fiscal year 1990, this Subcommittee has recognized the serious flood danger threatening the residents of Orange County, California. By providing the necessary funding to continue construction of the Santa Ana Mainstem Project, this Subcommittee is contributing to the protection of hundreds of thousands of lives and protecting against an economic catastrophe that would mar the economy far beyond Southern California. I appreciate the support that the subcommittee has previously provided. I join my Orange County colleagues, Mr. Dornan, Mr. Packard, Mr. Cox, Mr. Royce, and Mr. Kim in asking for your continued support.

I thank the Subcommittee for supporting the Santa Ana project in the past, and I look forward to our continued cooperation in the future. Thank you, Mr. Chairman.

Mr. BONO. Thank you very much, Mr. Chairman and committee members, for recognizing the issues of flood control and reclamation and supporting them. I must say I am very impressed with this committee because it is the first time that I have ever heard Dana, he grabbed me over there, talk about anything other than chili and tequila. And he sang your praises today. So if he says that, it must be so.

Again, to just be brief and move right along, I would like to point out some programs that are very important in my district. They include the Mystic Lake Restoration project, the Thousand Palms Flood Protection project, the Salton Sea Authority Research and Development project, all of which I support.

And in the interest of time I am going to submit a request for the funding of these projects later with detailing them here. Today you will be hearing from California Water Commission about the details of some of these projects. One project I would like to call to your attention is the Eastern Municipal Water District Wastewater Reclamation project.

I appreciate your continuing support of the Eastern Municipal Water District's unique wastewater reclamation project in Southwest Riverside County. The budget is included in the President's—the project is included in the President's budget and is supported by California's Water Commission. I respectfully request your continued support for the fourth and final year of the appropriation of $6 million for this project.

Again, I thank you very much for having all the California delegates here to speak on behalf of their projects. Thank you.

Mr. FAZIO. Thank you, Sonny.

And now to someone who shares the floodplain with Frank Riggs, Lynn Woolsey.

[The statement of Mr. Bono follows:]

Recommendations to the House Appropriations Committee Subcommittee on Energy and Water Development

Delivered by Congressman Sonny Bono
44th District, California

March 29, 1995

INTRO

Thank you for giving me and the California delegation an opportunity to speak to you today.

I would like to call to your attention some important projects which, if adequately funded, can significantly enhance the flood control and water conservation efforts in Riverside County.

MYSTIC LAKE

First, let me present the Mystic Lake Restoration Project.

This project will provide much-needed flood control to farmers and residents near the lake.

Twice in the past five years the San Jacinto River has broken through the levee designed to redirect its original flow, causing severe flooding in farmlands adjacent to and downstream from Mystic Lake.

When rains are not extreme, Mystic Lake is dry.

$3.75 million in federal funds are needed as a one-time appropriation to the Army Corps of Engineers Construction Fund to purchase the core land of Mystic Lake, redirect the river to its original flow, restore the lake and construct more adequate flood control measures.

These funds will be matched by $1.25 million in state and local funds.

Although not included in President's budget, these funds represent an essential investment to minimize costly flood damage from future rains in Riverside County.

THOUSAND PALMS FLOOD PROTECTION

Thousand Palms is the most vulnerable Coachella Valley community to catastrophic damage from floods cascading from the adjacent mountains.

Major storms over the last 15 years have devastated the community. Flood control facilities are greatly needed.

The Coachella Valley Water District has committed to 50% participation with the Corps of Engineers in a $3.29 million, 5-year study that will lead to the construction of flood protection for this community.

This is the first year of the study and the first year of funding for this study. It is included in the President's budget.

It is essential that the federal government continue budgeting $350,000 annually for the

Corps' participation.

SALTON SEA AUTHORITY

Another important project is the Salton Sea Authority Research and Planning Project.

The Salton Sea Authority, whose members include local water districts from Riverside and Imperial County, is in the second year of a multi-year workplan with the Bureau of Water Reclamation to find long-term solutions to the Sea's salinity and elevation problems.

The Authority and the Bureau are planning a demonstration project within two years to test the effectiveness of the proposed management options.

The State of California is also part of this partnership, providing in-kind technical services and possibly state matching funds in the next state budget.

In 1994 the federal budget earmarked $100,000 as seed money for this effort under the Central Valley Project Improvement Act. The bill earmarked $10 million for research of sea problems with the provision that there be non-federal matching funds.

Matching funds were raised for 1994 and 1995, and are committed for 1996, but the federal share does not appear in the budget for 1996.

We cannot let this opportunity to finally help solve the problems of the Salton Sea. I urge you to appropriate $100,000 to the Bureau of Reclamation for the continued development of the Salton Sea Authority's workplan.

EASTERN MUNICIPAL WATER DISTRICT

I also appreciate your continuing support for the Eastern Municipal Water District's unique wastewater reclamation project in southwest Riverside County.

This project has proven its ability to provide significant groundwater recharge, environmental enhancement, water conservation and recreational benefits.

The project is included in the President's budget and is supported by the California Water Commission.

I respectfully request your continued support for the fourth and final year of appropriation of $6 million.

MISCELLANEOUS

Finally, I would like to encourage your support for five other water projects which affect the State of California, all of which have been included in the President's budget:

Temescal Valley Project
Chino Basin Desalination Project
Salinas Valley Reclamation Project
Castroville Irrigation Supply Project

Thank you very much for your time.

Ms. WOOLSEY. Thank you, Mr. Chairman, Mr. Bevill, and Mr. Fazio. When I look up here, just to do a little of my own sucking up, Mr. Myers, I was disappointed when we lost our Majority, but when I knew you were going to be the Chairman of this committee, that gave me some faith that things weren't going to be so bad.

Mr. MYERS. Nice speech. Thank you.

Ms. WOOLSEY. Well, I have three projects. First, I would like to talk about the U.S. Army Corps of Engineers feasibility study of flooding problems along San Clemente Creek in Corte Madera. The mayor and vice mayor of Corte Madera will be talking to you later, Alan Airoldi and Norm Richardson. They will provide a lot more detail.

I am going to go quickly through this. We will be requesting the subcommittee maintain the President's 1996 budget request of $234 million—no, $234,000 for the Marin County shoreline study of the San Clemente Creek. That makes a difference, doesn't it?

Mr. MYERS. A zero here and there.

Ms. WOOLSEY. A digit here and there, right.

And also we would like to ask for allocation of $150,000 to provide for a seamless transition of this project design phase to immediately go into the feasibility phase. So that is the first thing I am asking.

And next I would like to thank you for your past support of the funds to develop a 43,000 acre preservation plan for the vernal pools of Santa Rosa Plain in Santa Rosa County. And Representative Riggs is an expert on this. I wish he were here today, because he got this whole project started in this 102d Congress.

Mr. MYERS. Pardon me for interrupting you. He will be back as soon as possible. He had to go to another meeting where they are having a very important session.

Ms. WOOLSEY. I am sure he did. I just know that he will support this, since he started it in the 102d Congress, when he was here. I pulled it through in the 103d and you helped fund it.

But what we have come up with is the last year's subcommittee supported the Corps' second $250,000 for this preservation plan, and the Corps has not come through with what you had asked for. And they recently informed me that they do not plan to abide by the Congress' direction for $250,000 to develop this preservation plan.

And I urge you to investigate this matter and to take steps to ensure that the Corps follows the instructions provided by this subcommittee. And if that doesn't happen, then I would like to have—request the subcommittee appropriate another $250,000 so that I can complete this project in Santa Rosa. Otherwise, we are just wasting the first $250,000.

Finally, what I would like to do, Mr. Chairman, is ask in order to prevent 5,000 years of a beautiful Bolinas Lagoon from filling up with silt, I would like to ask for $1.5 million for the Corps of Engineers to conduct a study to determine the most effective way to restore the Bolinas Lagoon and bring it back to health. Otherwise, it will be a great waste.

I have written testimony that supports all of these requests and the two gentlemen from Corte Madera will be here later this afternoon. And thank you very much.

Mr. FAZIO. Thank you very much, Lynn.

Another new Member with a lot of business before this committee, George Radanovich.

[The statement of Ms. Woolsey follows:]

REP. LYNN WOOLSEY
TESTIMONY
ENERGY & WATER DEVELOPMENT APPROPRIATIONS SUBCOMMITTEE

Mr. Chairman, I appreciate the opportunity to testify before the subcommittee today in support of three projects in the Sixth Congressional District of California.

First, I would like to thank the committee for its past support of funding for a U.S. Army Corps of Engineers feasibility study of flooding problems along San Clemente Creek in Corte Madera. I am pleased to report that the feasibility study is well underway and scheduled for completion in FY 96. The study will be followed immediately by pre-construction engineering and design.

Before I discuss the need for the feasibility study, I would like to take this opportunity to introduce you to Corte Madera Mayor Alan Airoldi and Corte Madera Vice-Mayor Norman Richardson. They will provide you with more detailed testimony later this morning.

Corte Madera is located in Marin County which is part of the Congressional District I represent and an area where I lived and raised my family for several years.

I know firsthand that portions of this town have serious flooding problems which can occur in both wet and dry weather and will substantially increase over time as settlement continues. There are more than 500 homes in the study area that are seriously affected by the flooding problem.

The President's FY 96 Budget includes an allocation of $234,000 for the final year of the San Clemente Creek feasibility study. I request that the subcommittee maintain the President's FY 96 budget request for the Marin County Shoreline Study of San Clemente Creek.

In addition, I respectfully request that the subcommittee add on an allocation of $150,000 to provide for a seamless transition to the Project Design Phase. The Project Design Phase will immediately follow the completion of the feasibility phase in late FY 96.

Secondly, I would like to thank the subcommittee for its past support for funds to develop a 43,000 acre preservation plan for the vernal pools on the Santa Rosa Plain in Sonoma County. Representative Riggs is an expert on the merits of this projects since he was instrumental in getting it off the ground when he represented the Santa Rosa Plain area during the 102nd Congress.

Covered by vernal pools, the Plain is essentially a seasonal wetland that is saturated during the winter months and dry during the summer. These vernal pools provide habitat for endangered plant and animal species. In Sonoma County, we have brought local, state and federal regulatory authorities together with the environmental and business communities to support efforts to determine what can be developed and what must be protected. Thus, this project is an excellent and uncommon example of cooperation between the environmental and business communities.

Last year, the President's budget request included $250,000 in the Corps of Engineers' Regulatory Budget to develop a preservation plan for the Santa Rosa Plain. This Subcommittee supported this funding request, as did the full Appropriations Committee, the full House of Representatives and the Senate. The report to accompany the FY 95 Energy and Water Development Appropriations bill specifically states that the Appropriations Committee supports the work being preformed by the Corps on the preservation plan for the Sonoma County vernal pools. And yet, the Corps of Engineers recently informed me that they do not plan to abide by Congress' direction to use $250,000 to develop the preservation plan because Congress did not appropriate the total amount requested by the Corps for their FY 95 Regulatory Budget.

Mr. Chairman, I find this very disturbing. Without funding, the Santa Rosa Plain Preservation Plan will not be fully completed. A partially completed preservation plan is useless to the people of my district and a waste of taxpayer dollars.

Mr. Chairman, I urge you to investigate this matter and to take steps to ensure that the Corps follows the instruction provided by this Subcommittee to use $250,000 in FY 95 for the Santa Rosa Plain preservation plan. I am certainly hopeful that it will be possible to ensure that the Corps uses the full $250,000 in its FY 95 funds as it was directed by this Subcommittee. However, if this is for some reason not possible, then I request that the Subcommittee appropriate in FY 96 any or all of the $250,000 that is till required for completion of the Santa Rosa Plain preservation plan.

Finally, I would like to ask for the Subcommittee's support of a Corps of Engineers study which will help save one of our nation's natural resource treasures--the Bolinas Lagoon.

Located in Marin County, the Bolinas Lagoon is one of nature's magnificent wonders. The Bolinas Lagoon provides a unique coastal environment for fish, water birds, and marine mammals that is unparalleled along the Northern California Coast.

In addition, the Bolinas Lagoon is unique in that it adjoins the Pt. Reyes National Seashore, the Gulf of the Farallones National Marine Sanctuary, the Tamalpais State Park, and the Golden Gate National Recreation Area. These side-by-side protected areas along with a healthy Bolinas Lagoon enable an essentially intact ecosystem to exist. Few other places in our nation offer this important opportunity for natural resource management.

This national treasure, which has existed for more than 5,000 years, is in imminent danger. In the past 100 years, the destructive practices of humans combined with natural forces have caused the lagoon to fill with sedimentation which is choking the lagoon to death. This is despite efforts by the local community to preserve the health of the lagoon, such as watershed management, erosion control, and construction of a sedimentation basin.

Not only will the loss of the lagoon harm the area's ecosystem, but it also will impact the economy of Marin County. The impact on sport and commercial fishing is already evident. The nearly one million visitors per year who come to Marin County to visit the Bolinas Lagoon and the neighboring Stinson Beach would be lost. Property rentals, restaurants, souvenir sales and other businesses would also be hard hit.

Mr. Chairman, in order to prevent the complete destruction of the Bolinas Lagoon, I request that the Subcommittee appropriate $1.5 million for the Corps of Engineers to conduct a study over a year and a half to determine the most effective way to restore the health of the Bolinas Lagoon.

Thank you, Mr. Chairman, for you consideration of these projects of great importance to the Sixth Congressional District.

Mr. RADANOVICH. Thank you, Mr. Fazio, Mr. Chairman. Appreciate the opportunity to come before you to address some of my concerns. I don't own a horse and I don't have a Hoosier cabinet, but I will be brief and maybe that will get me the appropriate attention today.

Mr. FAZIO. Yes, that will do it.

Mr. RADANOVICH. The San Joaquin Valley is one of the most productive agricultural regions in the world, and it is very vital to ensure the continued availability of irrigation water in this area. And of course it doesn't need to be said that flood control projects, as well, remain a major concern in my district.

Today I am urging that the subcommittee give full support to implementing the Bay-Delta agreement.

The California congressional delegation is very supportive of this agreement which sets us on track for resolving some of the State's most important environmental and economic issues.

I also feel strongly that no further funding should be provided for the San Joaquin River comprehensive plan until Congress acts to redirect this plan. Therefore, I suggest the subcommittee not accept the President's request of $1 million for the development of the plan in fiscal year 1996.

I would also urge the subcommittee to prohibit the Bureau of Reclamation from collecting reimbursements associated with the Kesterson cleanup program until certain conditions are met. Those conditions are provided in the written testimony that I will be offering.

I would like to recognize two people in the audience, Dick Schafer with the Tule River Association, and also Mr. James Crook with the Kaweah Delta Water Conservation District, who are here in support of continued funding for the Terminus Reservoir Enlargement Project and the Success Dam Seismic Study and Enlargement Feasibility Study, both of which I believe are needed.

In addition, I suggest that the subcommittee provide funding for the Shasta Dam temperature control device, the Glenn-Colusa Irrigation District Fish Screen and the Pine Flat and Wildlife Habitat Restoration Study. I would also urge the subcommittee to support the President's request for a program to screen unscreened water diversions in and above the delta.

That is the end of my testimony.

Mr. FAZIO. Thank you, George.

Now, somebody who has truly seen the flood damage and maybe that will increase the cost of vegetables across the country.

Sam Farr.

[The statement of Mr. Radanovich follows:]

HONORABLE GEORGE RADANOVICH
TESTIMONY BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
MARCH 29, 1995

BUREAU OF RECLAMATION

CENTRAL VALLEY PROJECT

The Eastern San Joaquin Valley of California is one of the most productive agricultural regions in the world. It is a vital national resource, and one dependent in large part on the continued efficient operation of the Bureau of Reclamation's Central Valley Project (CVP).

I support the President request of $59.6 million for operation and maintenance of the CVP. I also want to address a number of specific CVP items and issues in the budget.

Bay-Delta Agreement: The President's budget includes funding for a number of studies and actions that are important to the implementation of the historic Bay-Delta agreement. The California Congressional Delegation is largely supportive of this agreement, which sets us on a track for resolving some of the state's most important environmental and economic issues.

I join my colleagues in urging the Committee to give its full support to implementing the Bay-Delta agreement.

Signed on December 15, 1994, the accord brings together the federal government, agricultural and urban water users, the environmental community and the State of California to address water quality and endangered species problems while providing economic certainty.

Implementation of the agreement is now underway. It is important that Congress demonstrate its support for the agreement by funding the Delta-related studies requested by the Administration in the FY 1996 budget proposal.

San Joaquin River Comprehensive Plan: No further funding should be provided for the San Joaquin River Comprehensive Plan until Congress acts to redirect the plan. Therefore, I urge the Committee not to accept the President's request of $1 million for development of the plan in FY 1996.

The House recently approved report language for the supplemental appropriations bill directing the Interior Department to stop further spending on development of the San Joaquin plan in FY 1995. The Bureau had budgeted $3 million for work in 1995.

The purpose of the report language was to prevent the Bureau from spending money on a plan that is being reassessed by the authorizing committee. Under the Central Valley Project Improvement Act (CVPIA), the Interior Department is required to develop a "reasonable, prudent and feasible" plan to address the fish and wildlife concerns on the river, including re-establishment of a salmon fishery on the Upper San Joaquin River. The salmon disappeared from the Upper River about 40 years ago.

The Secretary of the Interior, Bruce Babbitt, announced last fall that re-establishment of the salmon fishery on the Upper San Joaquin River would not meet the CVPIA's requirement for a plan that is "reasonable, prudent or feasible." The Secretary said that restoring the long-dead fishery would simply take too much water from the farms and cities that have grown up in the region during the last 40 years.

The Secretary's statement was welcomed by the people of the San Joaquin Valley. However, it also threw the status of the San Joaquin River plan into confusion.

The House Resources Committee, of which I am a member, plans to re-examine the San Joaquin River plan, as well as all the other major features of the CVPIA, later this year. I expect that the Act, and the plan, will be amended. Therefore, I do not believe that Congress should commit any FY 1995 or FY 1996 funds to the San Joaquin River Comprehensive Plan.

Shasta Dam Temperature Control Device: The President's budget includes a total of $31.8 million for a temperature control device at Shasta Dam to improve habitat for endangered salmon and to minimize water losses to agricultural and urban users. I support the President's request, which is also supported by water users, environmentalists and the California Water Commission.

Of the total requested funding for the project, almost $12 million would come from the CVP Restoration Fund, which is supported by a surcharge on the water and power customers of the CVP. Users in the Friant Unit of the CVP alone contribute more than $10 per acre-foot, or about $6 million annually, to the fund. The balance of the federal money for the temperature control project would come from appropriations.

The State of California is sharing the cost of the control device, but the requested federal funds should be provided regardless of the timing of the State's contribution so that the project can move forward as soon as possible.

Screening Unscreened Diversions: I support the President's request for $6 million for a program to screen unscreened water diversions in and above the Delta. This program, which is supported by the State, water users and environmentalists, is an important component of the Bay-Delta agreement.

In the past, much of the debate over protecting Delta fisheries focused on the federal and state pumps that deliver water to the San Joaquin Valley. But the thousands of unscreened water intakes in the Delta contribute significantly to fish problems there. They must be addressed to enhance the fishery and minimize adverse impacts on water supplies south of the Delta.

Glenn-Colusa Irrigation District Fish Screen: Although I represent the San Joaquin Valley, I want to express support for a project that is very important to the Sacramento Valley and to the CVP service area as a whole.

I join my colleagues from the north in requesting an appropriation of $3 million in FY 1996 to advance work on a permanent new fish screen at Glenn-Colusa Irrigation District's Hamilton City Pumping Plant. This continues improvements on this project that have already begun.

The screen will allow the District to meet its water needs without jeopardizing the endangered winter run chinook salmon. Conditions imposed by the Endangered Species Act now restrict pumping for GCID, as well as pumping from the Delta to the San Joaquin Valley. Projects such as the GCID fish screen benefit all project users because they minimize the need to divert water from agriculture to fish protection.

KESTERSON REPAYMENT AND SAN JOAQUIN DRAINAGE PROGRAM

I urge the Subcommittee to prohibit the Bureau of Reclamation from collecting reimbursements associated with the Kesterson cleanup program until one of three conditions is met:

(1) The CVP is transferred to the water districts.

(2) The federal government completes the San Luis Drainage Project. It would be unprecedented for the Bureau of Reclamation to collect user fees prior to the completion of the project.

(3) The appeal by the Bureau of Reclamation of Sumner Peck Ranch, Inc., et al. v. Bureau of Reclamation, case no. CV-S-91-048 OWW (E.D. CAL), is resolved by a final judgment.

CORPS OF ENGINEERS

PINE FLAT FISH AND WILDLIFE HABITAT RESTORATION STUDY

I want to express my strong support for the President's request for $500,000 for a feasibility study of fish and wildlife habitat restoration measures on the Kings River and at the Pine Flat Dam flood control project.

The Pine Flat study will examine ways to enhance existing environmental values on the Kings River without damaging the local agricultural economy that depends on irrigation water from the river. Among other things, the study will look at measures to improve temperature control for fishery enhancement and improve spawning beds and riparian and wetland habitat.

The feasibility study is being cost-shared by Kings River water and power users because they believe that the measures under consideration will help minimize the type of environmental conflict that has occurred on other water systems in California.

Turbine Bypass Line: The feasibility study will take several years to complete. To provide for some more immediate improvement, the Corps is planning to undertake restoration measures under its Section 1135 environmental enhancement program.

One of those measures is a turbine bypass line for the hydroelectric plant at Pine Flat Dam. The simple and inexpensive bypass could be completed in three years under the Section 1135 program to allow for better temperature control below the dam. Eventually, the bypass would operate with a larger and more complex temperature control device currently under study.

I am joining my San Joaquin Valley colleague, Rep. Cal Dooley, in requesting that the Committee approve report language to encourage the Corps to continue to undertake the turbine bypass as a separate environmental enhancement project under the Section 1135 program. Similar language was approved by the House in last year's Water Resources Development Act.

TERMINUS RESERVOIR ENLARGEMENT

As the result of the Corps questionable new policy regarding single-state flood control projects, a project important to the eastern San Joaquin Valley has been proposed for termination despite its obvious merits and a large investment by local authorities.

The project is the enlargement of Terminus Reservoir on the Kaweah River. The Corps will soon finish a seven-year feasibility study to increase the flood control and water storage capacity of Terminus Reservoir. The project, which would add about 43,000 acre-feet of space to the reservoir, has a positive benefit/cost ratio.

However, the Corps' FY 1996 budget proposal does not include funding for the preconstruction planning and engineering phase of the project.

Local authorities, including the Kaweah Delta Water Conservation District, the City of Visalia and Kings and Tulare counties, have invested a lot of work and more than $1.4 million in the feasibility study. They believe that the Corps new policy breaks faith with them.

The Corps has increased the cost of the study several times. It told local authorities that they would have to share the increased costs or lose the project. The estimate for the cost of the study grew from $1.6 million in 1988 to more than $3 million today. Now the Corps wants to pull out.

I request that the Committee provide $300,000 in the Corps FY 1996 budget for preconstruction engineering and design for enlargement of Terminus Reservoir. This project could be a model for meeting water supply and flood control needs by improving the operation of existing facilities rather than building expensive new ones.

Mr. James Crook, the Manager of the Kaweah Delta Water Conservation District, will testify today regarding the Terminus Project. Enlargement of Terminus is a high priority for local authorities such as the Conservation District. The District's request for a FY 1996 appropriation of $300,000 for preconstruction engineering and design also is supported by the California Water Commission.

I urge the Committee to continue to support this important project.

Kaweah River Corridor Enhancement: I also want to ask the Committee to support the Bureau of Reclamation's proposal to shift $200,000 from it construction account to the National Fish and Wildlife Foundation to support the Kaweah Corridor Enhancement Project.

The Bureau provided $1 million to this cooperative environmental enhancement effort in FY 1995. The State of California also is committing funds, as are several local agencies. The effort is being led by the Kaweah Delta Water Conservation District, with support from the City of Visalia and surrounding communities.

TULE RIVER: SUCCESS DAM AND RESERVOIR

Success Dam Seismic Study: I urge the Committee to support the President's request for $700,000 for the Corps to complete the Success Dam seismic study and for determination of remediation, if any.

Success Reservoir Enlargement Feasibility Study: I encourage the Committee to include $200,000 for the Corps commencement of updating the Success Reservoir Enlargement Feasibility Study.

Mr. FARR. Thank you very much. I will be as brief as I can. I am here on four-and-a-half projects.

Forty-eight counties in California were declared a disaster area by the President, and the worst one hit was Monterey County, which is a leading producer of agriculture in this country. None of that agriculture receives any government subsidies in water or crop set-asides or anything like that. But it is interesting in trying to—the mouth of the Salinas Valley, where you have a lot of saltwater intrusion due to the largest reclamation project in the country for agriculture.

Mr. Bevill has taken a personal interest in this last year, and I am here just to request your continued support of the two Bureau of Reclamation projects for this small reclamation loan program. But we need the full funding requested by the administration on this, $1.1 million for the Salinas Reclamation project, and $1.5 million for the Castroville Saltwater Intrusion project. The committee supported those last year and I would ask that you continue to support them.

The second two projects are the river projects. The Pajaro River I think we ought to teach a political course on it, because two counties are separated by this river, and all the politics of how you develop local contributions and manage a river is really at stake here.

Essentially, the Corps of Engineers has a 50-year flood level protection program that is outdated and needs to be upgraded. And I am asking this committee to accept the U.S. Corps of Engineers' presidential request for $500,000 for preconstruction engineering and design of the Pajaro River Flood Damage Prevention program. This is—the local governments are all right, now changing their assessment practices so that they will pay an awful lot more at the local level for this, and I urge that you support it.

And lastly, urge you to accept the U.S. Corps of Engineers' fiscal year 1996 presidential request for $100,000 to complete the preconstruction engineering design phase of the proposed improvements of the San Lorenzo River Control project. But I would also request that you couple with this the construction funding to include $1 million for the portion of the environmental restoration program under Section 1135 of the Water Resources Development Act.

The total cost for the restoration is estimated at $4.5 million. The city is the local sponsor and is responsible for a little over $1 million of that cost. A thousand members of the local community participated in the process, spent nearly a million dollars on the feasibility study, and it is essentially a way of using the levee as a redevelopment area. And it is a very exciting opportunity for any city in the United States that has a river running through it. And I think that that will be $1 million very wisely spent.

Those are my requests and I appreciate the support of the committee in the past. Look forward to continuing to work with you. Thank you.

[The statement of Mr. Farr follows:]

REP. SAM FARR (17th-CA) TESTIMONY BEFORE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

March 29, 1995

Chairman Myers, members of the subcommittee, thank you for the opportunity to be here today to request funds for several critical projects in my district.

BUREAU OF RECLAMATION P.L 984 LOAN PROGRAM REQUESTS

I would like to respectfully request your continued support for two U.S. Bureau of Reclamation projects in my district. Both requests are included in the President's FY'96 budget for the P.L 984 Small Reclamation Loan Program. Both requests are to fulfill loan obligations made to project sponsors:

$1,100,000	The Salinas Valley Reclamation Project - for the construction of a wastewater reclamation plant adjacent to the Monterey Regional Water Pollution Control Agency's regional treatment plant;
$1,500,000	The Castroville Seawater Intrusion Project - for the construction and placement of an irrigation system in the Salinas Valley for distribution of the reclaimed wastewater on agricultural land.

Monterey County agriculture produces over $1.8b worth of 47 different specialty crops per year or about 10% of the agricultural output of California. As agricultural activity and urban development have increased, groundwater levels have dropped allowing seawater to intrude.

These projects are a crucial component in dealing with Salinas Valley sea water intrusion problems and serve nationally as a model or pilot project for other larger sea water intrusion and water reclamation projects now in the planning stage.

The projects will:

- provide 19,500 acre-feet of reclaimed water for irrigation use to over 12,000 acres of agricultural land in the Salinas Valley.
- protect the Salinas Valley Groundwater Basin from seawater intrusion. The Basin is the Valley's sole source of municipal, industrial, and agricultural water. (Reclaimed water would directly replace pumped groundwater thus reducing the back pressure which causes seawater intrusion).
- protect and enhance the Monterey Bay National Marine Sanctuary (by reclaiming water that would otherwise be discharged into the Sanctuary);
- protect the Salinas River.
- create approximately 3,400 new jobs during the construction,and operational stages of the projects in an area hit by the Fort Ord base closure and a seasonal 20 percent unemployment rate;

The Bureau of Reclamation has requested as part of the President's FY '96 budget for the P.L. 984 Small Reclamation Loan Program for the continuation of loan obligations made to the Monterey County Resources Agency

The funding requested for FY 96 is the subsidized portion of the loan estimated on a present value basis as required by the Federal Credit Reform Act of 1990. Additional non-budgetary funds available from the U.S. Treasury as a means of financing the non-subsidized portion of the loan are $880,000 for the Salinas Valley Reclamation Project $1,210,000 for the Castroville Sea Water Intrusion Project.

$500,000 FOR PAJARO RIVER FLOOD DAMAGE PREVENTION PROJECT

I urge the subcommittee to accept the U.S. Army Corps of Engineers FY '96 Presidential request of $500,000 for Preconstruction Engineering and Design of the Pajaro River Flood Damage Prevention Project.

Mr Chairman as you know, most of my district including Monterey County is a federal Presidentially declared disaster area due to flooding. The worst hit in the ongoing California floods is Monterey County due to the Pajaro River.

In May 1994 the Santa Cruz County Flood Control District approved a flood control project that will cost $12 million with $3 million coming from local taxes. The plan would provide 47 year flood protection for the city of Watsonville and includes construction of flood walls, clearing and possible deepening of channel and pumping of excess water.

I am extremely concerned about the recently announced Core of Engineers policy to only complete the current phase of each project and only proceed to the next phase if it is determined to be "nationally significant" according to very restrictive and unfair criteria. I will comment on this further at some future date.

Background on the Pajaro River Flood Damage Prevention Project:

The Construction of levees to provide a 50 year level of flood protection was completed by the Corps of Engineers in June 1949. Subsequent to construction, two major floods nearly exceeded the capacity of the project. As a result, additional studies were authorized and a project to provide a higher level of flood protection was identified. Lack of local sponsorship placed the project on a deferred status until increased flooding upstream in the 1980's spurred local support for additional studies. The existing project provides less than a 20 year level of flood protection along the Pajaro River due to changes in basin hydrology. The reconnaissance study will examine alternative plans for flood control improvements. It is supported by local interests, and a new tax assessment zone has been established to finance the feasibility study and the project. The Counties of Santa Cruz and Monterey, the local sponsors, have expressed support for the study , understand the two phase planning process, and are willing to participate in 50-50 cost sharing of feasibility phase studies.

$100,000 FOR SAN LORENZO RIVER FLOOD CONTROL PROJECT

I also urge the subcommittee to accept the U.S. Army Corps of Engineers FY '96 Presidential request of $100,000 to complete the Preconstruction Engineering and Design (PED) phase of the proposed improvements to the San Lorenzo River Flood Control Project. Additionally I urge your consideration of funding for this fiscal year of $4 million for the first phase of a projected two year construction period. The Corps has estimated total construction cost at $15.7 million, half of which the city of Santa Cruz would be responsible for.

Coupled with the construction funding, I urge you to include $1 million for a portion of the environmental restoration project under Section 1135 of the Water Resources Development Act of 1986. The total cost of restoration is estimated at $4.05 million. The City as the local sponsor is responsible for $1.0125 million of that cost.

The City of Santa Cruz has been working for over twenty years with the U.S. Army Corps of Engineers to upgrade the protection offered by our existing Corps flood control project which presently gives less than 30 years of flood protection. During this planning period over 1,000 members of the local community have participated directly in the process, and the City has spent nearly $1 million on the feasibility study which was recently completed by the Corps of Engineers.

Since my testimony last year before this subcommittee, the Santa Cruz has undertaken a number of activities to prepare for the construction phase of the project including:

> In May 1994 the City passed a Storm Water Fee to help pay for the local share of the project as well as the cost of two significant bridge reconstruction projects which are necessary as a result of the flood control project. The fee is now paid by every property owner in Santa Cruz.
>
> Portions of the Water Street and Soquel Avenue Bridges will be reconstructed over the next two summers. The local price tag for these bridges is $10 million.
>
> The City has worked with the Corps to schedule the proposed environmental restoration simultaneously with the construction of the project to eliminate duplication and cut costs.

As the House Water Resources Development ACt of 1994 pointed out last year, nearly 1100 residential and 300 commercial structures as well as the principal commercial district of the city are at risk. The recent flooding in the neighboring communities of Pajaro and Castroville demonstrate the need to ensure that a similar disastrous not occur again in Santa Cruz.

Background on flood problems of San Lorenzo River and Section 1135 request:

The flood problems of the San Lorenzo River date back to 1955. In that year, the City of Santa Cruz suffered a disastrous flood, resulting in the death of five people and the displacement of 2,400 others, as well as damages estimated at some $40 million in current dollars. In 1959, in response to this tragedy, the Corps built a channel and levee flood control project but sediment build-up eventually raised the river bed to its original level. Studies after heavy storms in 1981-82 suggested that earlier information on river behavior and flows was erroneous and Congress authorized a new study.

Estimates suggest that a flood comparable to the 1955 flood would cause damages of some $70-90 million. My constituents in Santa Cruz have lived under this threat for many years and they are anxious to find a safe, permanent solution to this problem. The San Lorenzo River Flood Control Project has already been delayed by the Loma Prieta earthquake. Approval of the FY '95 request will allow this project to continue and help ensure that progress is made before another flood occurs.

In connection with the San Lorenzo Flood Control Project, the Corps of Engineers has completed a section 1135 Initial Appraisal Report for the "San Lorenzo Habitat Restoration". Under this program the exterior slopes of the levees would be modified to accommodate plantings of native trees and interior slopes would be modified to accommodate native grasses and shrubs. The construction of the original flood control levees removed riparian vegetation severely reducing that type of habitat where levees were built. The city appreciates the aesthetic and recreational value of the San Lorenzo River and has taken a keen interest in integrating these values with the flood control project.

Mr. FAZIO. Thank you.

We are out of time, and not out of Members, so I would urge we have it.

WEDNESDAY, MARCH 29, 1995.

CALIFORNIA PROJECTS

WITNESSES

HON. JAY KIM, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

HON. ANNA ESHOO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

HON. TOM LANTOS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

HON. WILLIAM M. THOMAS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

HON. RON PACKARD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

HON. ROBERT K. DORNAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

HON. JOHN T. DOOLITTLE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

HON. CHRISTOPHER COX, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. FAZIO. Jay Kim.

Mr. KIM. I have a accent I am trying to get rid of.

Mr. MYERS. You have all heard about the McDonald's episode, where the lady spilled coffee on her lap. What would you do about any a Member of this delegation who spilled coffee on the Chairman this morning, hot coffee and then to come before the committee later on?

Mr. PACKARD. I would recommend you give him his project.

Mr. MYERS. We won't give it to him. He might earn it.

Mr. KIM. I have four small projects. The first is interesting. It is the San Antonio Creek Project.

It is the only channel we have. They told the community that they are going to set a moratorium so no further connections can be made. That is difficult because the building permits have to be installed.

It is an emergency situation, because they said they only handle a 100-year storm. The local government is willing to contribute a minimum of $15 million. All we need is $350,000 to complete the study, and $150,000 has been budgeted by the administration, but the Corps of Engineers tells me that is not enough; we need an additional $200,000. I am asking for $350,000. In my opinion, it is a reasonable request.

The second project is the Santa Ana River Mainstem Project being conducted by the Corps of Engineers. Again, this project has been in construction since 1989 and we are asking an additional $70 million for this fiscal year to complete the project. I am not going to elaborate.

Further is the Orange County Regional Water Reclamation Project. We are asking $600,000 to fund this project. Instead of discharging, wasting this reclaimed water to the ocean, we are trying to contain this water by using spreading basins and recharging to a groundwater aquifer. It is an ambitious project and exciting for us. We don't have to depend on northern California water any longer. This project is fully authorized under Public Law 102–575.

Another project is the San Sevaine Water Project, asking $250,000. It is one of those 11 projects grandfathered into the Small Reclamation Projects Act of 1994. We are recharging 125,000 acre feet of storm water runoff into the Chino Groundwater Basin trying to save the clean water from the waste.

Thank you for the opportunity.

Mr. FAZIO. Thank you very much.

[The statement of Mr. Kim follows:]

THE HONORABLE JAY KIM
TESTIMONY BEFORE THE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
OF THE HOUSE APPROPRIATIONS COMMITTEE

MARCH 29, 1995

THANK YOU MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE FOR THE OPPORTUNITY TO TESTIFY BEFORE YOUR SUBCOMMITTEE AND RECOMMEND FOUR PROJECTS FOR YOUR CONSIDERATION:

1. THE SAN ANTONIO CREEK FLOOD CONTROL CHANNEL RECONNAISSANCE STUDY.
2. THE SANTA ANA RIVER MAINSTEM PROJECT.
3. THE ORANGE COUNTY REGIONAL WATER RECLAMATION PROJECT.
4. THE SAN SEVAINE CREEK WATER PROJECT.

SAN ANTONIO CREEK RECONNAISSANCE STUDY

MY FIRST REQUEST IS FOR $350,000 TO COMPLETE THE RECONNAISSANCE STUDY AND INITIATE A FEASIBILITY STUDY FOR SAN ANTONIO CREEK. I AM REQUESTING AN ADDITIONAL $200,000 OVER THE ADMINISTRATION'S BUDGET REQUEST.

THIS PROJECT IS AN EXISTING CORPS OF ENGINEERS CHANNEL FACILITY WHICH CONVEYS FLOWS FROM BOTH LOS ANGELES AND SAN BERNARDINO COUNTIES INTO THE PRADO RESERVOIR -- WHICH IS PART OF THE SANTA ANA RIVER MAINSTEM PROJECT. INITIAL EXAMINATIONS BY THE CORPS AND THE SAN BERNADINO FLOOD CONTROL DISTRICT HAVE FOUND THE CHANNEL TO BE INADEQUATE TO CONVEY 100 YEAR STORM FLOWS.

IN ADDITION, THE CORPS HAS ADVISED THE TWO COUNTIES AND THE LOCAL COMMUNITIES THAT NO FURTHER STORM DRAIN CONNECTIONS TO THE CHANNEL CAN BE MADE UNTIL THE STUDY IS COMPLETED AND MODIFICATIONS ARE MADE TO THE CHANNEL. THIS HAS CREATED A TREMENDOUS HARDSHIP FOR THE LOCAL COMMUNITIES AS THERE IS NO OTHER ALTERNATIVE TO CONNECTING WITH THE SAN ANTONIO CREEK CHANNEL.

ALTHOUGH SAN ANTONIO CREEK IS A FEDERALLY OWNED AND OPERATED FLOOD CONTROL FACILITY, SAN BERNARDINO COUNTY CONSENTED TO BE THE LOCAL LEAD AGENCY AND AGREED TO CONTRIBUTE BETWEEN $15 AND $18 MILLION FOR THE MODIFICATIONS AND IMPROVEMENTS.

THE FORMER PUBLIC WORKS COMMITTEE AUTHORIZED $500,000 FOR THE RECONNAISSANCE AND FEASIBILITY STUDIES BY RESOLUTION LAST YEAR.

THE SANTA ANA RIVER MAINSTEM PROJECT

MY SECOND REQUEST IS TO SUPPORT THE ADMINISTRATION'S FY 96 BUDGET REQUEST FOR THE SANTA ANA RIVER MAINSTEM PROJECT. THIS PROJECT IS FULLY AUTHORIZED AND HAS BEEN UNDER CONSTRUCTION SINCE 1989. THE SANTA ANA MAINSTEM IS A MAJOR FLOOD CONTROL PROJECT DESIGNED TO PROTECT MILLIONS OF ORANGE COUNTY RESIDENTS. THE ADMINISTRATION HAS RECOMMENDED $70,249,000 FOR 1996, AND I URGE THIS COMMITTEE TO SUPPORT THE REQUEST.

THE ORANGE COUNTY REGIONAL WATER RECLAMATION PROJECT

MY THIRD REQUEST, IS FOR $600,000 TO FUND THE ENVIRONMENTAL STUDIES AND PRELIMINARY DESIGN PHASES OF THE ORANGE COUNTY REGIONAL

WATER RECLAMATION PROJECT.

BY YEAR 2020, THE PROJECT WOULD RECLAIM 100,000 ACRE FEET OF WASTEWATER THAT IS CURRENTLY DISCHARGED INTO THE PACIFIC OCEAN. THIS WATER WOULD BE PUMPED 13 MILES TO THE SANTA ANA SPREADING BASINS AND RECHARGE THE AQUIFER.

BY REDUCING SOUTHERN CALIFORNIA'S DEPENDENCE ON NORTHERN CALIFORNIA WATER, THIS PROJECT WILL GREATLY IMPROVE ONE OF THE MOST ENVIRONMENTALLY SENSITIVE AREAS IN THE STATE, THE SACRAMENTO–SAN JOAQUIN RIVER DELTA.

THIS BUREAU OF RECLAMATION PROJECT REQUEST IS FULLY AUTHORIZED UNDER PUBLIC LAW 102-575.

THE SAN SEVAINE CREEK WATER PROJECT

MY FINAL REQUEST, IS TO PROVIDE $250,000 FOR THE SAN SEVAINE CREEK WATER PROJECT. SAN SEVAINE IS ONE OF THE ELEVEN PROJECTS "GRAND FATHERED" INTO THE "SMALL RECLAMATION PROJECTS ACT" IN 1994. THE PROJECT WILL RECHARGE 25,000 ACRE FEET OF STORM WATER RUNOFF INTO THE CHINO GROUNDWATER BASIN. IN ADDITION, THE PROJECT WILL PROVIDE ENHANCED FLOOD CONTROL, ENVIRONMENTAL, AND WATER CONSERVATION BENEFITS FOR WESTERN SAN BERNARDINO COUNTY.

AGAIN, THANK YOU MR. CHAIRMAN.

Mr. FAZIO. Anna Eshoo.

Ms. ESHOO. Thank you and good morning, Mr. Chairman and Mr. Bevill and Vic. Thank you for allowing California day to continue.

We represent really a great State and the work of this committee has added much to the greatness of our State. So I want to acknowledge that, and thank each of you.

I am here today to request the committee's support for the High Energy Physics Program at DOE, including the $52 million for the B Factory at Stanford Linear Accelerator Center, known as SLAC.

Last Congress, myself along with Californians throughout the State, worked hard to bring the B Factory to SLAC. In the wake of the SSC closeout, I advocated that SLAC should be the place where the DOE could reestablish its priorities and ensure that high energy physics research would continue and perform these two critical objectives while meeting the equally critical budgetary targets set by the Federal Government.

As you know, the President's budget request for fiscal year 1996 does include $52 million for the B Factory. This amount follows the recommendations set down by the Drell Panel which urged facility upgrades at SLAC and Fermilab in Illinois in order to maintain our Nation's prominence in basic science. I believe the request satisfies our Nation's long-term science goals while also meeting important fiscal responsibilities.

There are other things that are part of my written testimony, and I would like to submit that to the committee, Mr. Chairman.

I finally want to underscore the importance of the water control projects of our region, and request they be given your highest consideration, as I know you will, given the problems that we have experienced most recently in California and the Santa Clara County Water District. And others will be before this panel today, and I know that you will pay very good attention to what they have to say.

In the interest of time, I will submit my written comments, and thank you and I wish you well with all these deliberations.

Thank you for your important support of the past. The project that you improved has much to do with the betterment of, not only our region and our State, but our Nation as well.

Mr. FAZIO. Thank you.

[The statement of Ms. Eshoo follows:]

Congresswoman Anna Eshoo

before the Subcommittee on Energy and Water Development

House Committee on Appropriations

March 29, 1995

- Mr. Chairman, thank you for the opportunity to testify before this subcommittee.

- I'm here today to request the Committee's support for the High Energy Physics Program at the Department of Energy including 52 million dollars for the B Factory at the Stanford Linear Accelerator Center (SLAC).

- Last Congress, I worked hard to bring the B Factory to SLAC. In the wake of the SSC closeout, I advocated SLAC as a place where the Department of Energy could re-establish its priorities, ensure that high energy physics research would continue, and perform these two critical objectives while meeting the equally critical budgetary targets set by the federal government.

- As you know, the President's Budget request for FY 96 includes $52 million for the B Factory. This funding amount follows the recommendations set down by the Drell advisory panel which urged facility upgrades at SLAC and the Fermilab in Illinois in order to maintain U.S. prominence in basic science.

•I believe this request satisfies our nation's long-term science goals while also meeting important fiscal responsibilities.

•In addition, I urge you to support the President's request to increase HEP operating funds by $100 million this year to improve facility efficiency at our nation's high energy physics laboratories.

*Mr. Chairman, while science funding is often viewed as one of the easiest places to cut costs, such cuts in funding may in fact be costly to America's long term economic health.

•Finally, Mr. Chairman, I want to underscore the importance of these water control projects to our region given the disastrous floods in California and the resulting millions of dollars worth of damages.

That is why I am supporting the requests of the Santa Clara Valley Water District to be presented by Rosemary Kamei, Chairwoman of the District's Board of Directors.

•Critical among the requests for Santa Clara County are the $8.1 million in construction for the Guadalupe River Project, $12 million in construction for the Coyote and Berryessa project, and $285,000 in feasibility funding for the Upper Guadalupe River Project.

- Thank you, Mr. Chairman for the opportunity to come before the Committee and provide you with this information. I am grateful for the Committee's time and willingness to listen.

Thank you.

Mr. FAZIO. Tom Lantos.

Mr. LANTOS. Thank you very much.

Before I begin my very brief comments, Mr. Chairman, let me support the Stanford request. Stanford used to be in my congressional district. And since I also represent the western half of San Francisco, let me associate myself with Ms. Pelosi's request.

I will not follow my colleagues example by making complimentary remarks about you and Chairman Bevill. It is obvious to everybody that I am from Alabama.

Mr. MYERS. I wondered where that accent came from.

Mr. BEVILL. It is good to hear somebody that doesn't have an accent.

Mr. LANTOS. Thank you.

As you know, Chairman Myers, Indiana is responsible for carrying on the Hungarian Cultural Tradition. There is a tremendous center at Bloomington which I though you might want to have pointed out.

I am here, Members of the committee, on behalf of the San Mateo County Harbor District and am somewhat embarrassed by the minimal nature of my request. This is in tune with the tenor of our times, and I am submitting a dramatically downsized proposal to you. Later today, our harbor commissioners and the general manager will present the program in detail.

I would like to request an appropriation of $400,000. These funds would be used for maintenance, essential repairs and extension of the West Harbor Outer Breakwater built three decades ago by the Corps of Engineers. If not addressed, serious and now, continuous overtopping of this breakwater will cause major erosion problems, and breakwater failure will rapidly increase sediment disposition in the harbor.

There is an Air Force property located directly adjacent to the harbor. It is in danger of eroding to the point of slope failure. Should that occur, the result would be major damage to the breakwater, commercial vessels, and potentially loss of life. In addition, the need for dredging the harbor will be eminent, therefore increasing operating costs unnecessarily.

In addition, I would like to request a $300,000 appropriation to complete a reconnaissance study begun last year for channel deepening in the Pillar Point Harbor area. This area serves the commercial fishing industry, which is an extremely valuable resource for the economy of San Mateo County.

The harbor also offers many benefits to the sport fishing industry and recreational boat users from the seven-county region surrounding Pillar Point. In an area covering more than 30 miles of coastline between San Francisco and Santa Cruz, Pillar Point is the only safe harbor of refuge for all the boaters who have no safe port. With its own search and rescue unit, averaging over 100 rescues per year, the harbor district has eliminated the need for a Coast Guard facility at the location, thus, considerably reducing spending by the Federal Government.

Mr. Chairman, I am most grateful for this opportunity to appear before your subcommittee and I want to express my appreciation for the historic support you have given our district on a bipartisan basis.

Thank you very much.

Mr. FAZIO. Thank you.

[The statement of Mr. Lantos follows:]

CONGRESSMAN TOM LANTOS
12TH DISTRICT - CALIFORNIA

TESTIMONY BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT COMMITTEE ON APPROPRIATIONS

March 29, 1995

Mr. Chairman, I appreciate the opportunity to testify before your committee. I am here on behalf of the **San Mateo County Harbor District**, located in my congressional district in Northern California. Three Harbor Commissioners along with the General Manager, are here today representing the San Mateo County Harbor District and will testify before the committee this afternoon.

I would like to request an appropriation for **$400,000**. These funds would be used for maintenance, essential repairs and extension of the west harbor outer breakwater, built three decades ago by the Army Corps of Engineers. If not addressed seriously, continuous overtopping of this breakwater will cause major erosion problems and breakwater failure will rapidly increase sediment disposition in the Harbor. Air Force property, located directly adjacent to the Harbor, is in danger of eroding to the point of slope failure. If this occurs, the result would be major damage to the breakwater, commercial vessels, and potentially loss of life. In addition, the need for dredging of the Harbor will be imminent, therefore increasing operating costs unnecessarily.

In addition, I would like to request a **$300,000** appropriation to complete the reconnaissance study begun last year for channel deepening, in the Pillar Point Harbor area.

Pillar Point Harbor primarily serves the commercial fishing industry, which is an extremely valuable resource for the economy of San Mateo County. The Harbor also offers many benefits to the sport fishing industry as well as recreational boat users from the seven county region surrounding Pillar Point.

In an area covering more than 30 miles of coastline, between San Francisco and Santa Cruz, Pillar Point Harbor is the only "Safe Harbor of Refuge for all the boaters who had no safe port." With its own Search and Rescue unit, averaging over 100 rescues per year, the Harbor District has eliminated the need for a Coast Guard facility at the location, thus reducing spending by the Federal Government. Mr. Chairman, I am most grateful for this opportunity to appear before your Subcommittee, and I would appreciate your favorable consideration of this request.

Mr. FAZIO. Bill Thomas was signed up earlier and has just returned.

Let me yield to the Chairman of my other committee.

Mr. THOMAS. I appreciate your letting me come in.

Mr. Chairman, I have a written testimony that I would like to be made part of the record and acknowledge that once again I have a board of supervisors from Kern County, Mary K. Shell and Mr. Dick Schafer who is the Secretary–Watermaster for the Tule River Association.

I am sure that a number of others have told you that we are once again in a flood situation. The two counties that I am focusing on, projects in Kern and Tulare Counties, are disaster flood areas, and the numbers are there.

The Caliente Creek Project in Kern County was one of the first matching fund projects in the United States. My local people have dutifully paid on time and every year for more than eight years over $900,000, now approaching a million dollars. With the new criteria that are being laid before us in terms of the viability of projects, you have just told these people that for $1 million they have purchased absolutely nothing.

I can understand changing criteria which looks at the cost/benefit ratio, and the Federal Government says we want to get more for our money. I understand moving from a matching share to 50/50 to 75/25. But I do not understand how you can put in a criteria which clearly discriminates against a region of the United States.

When you say you have to deal with water that crosses State lines or more than 50 percent originates from outside of a State, you are absolutely punishing the West. We drew our States historically along the lines of latitude and longitude. How else do you wind up with four corners.

We did not use the customary transportation routes of an earlier time, to a very great extent, the rivers. We don't have as extensive a river system in the West as they had in the East. The West is newer, the mountains thrust higher, haven't worn down yet.

All rivers in California flow into the Pacific, but they don't originate from another State. This is an absolutely discriminatory provision against the West.

Mr. MYERS. If the gentleman would yield?

This committee is not going to consider that.

Mr. THOMAS. I want to get that on the record because I have people who have followed the rules for a decade. We still don't have anything, and that is in my testimony, and I hope we can move forward in terms of producing a product. We always come here and joke about whether it is famine or flood, and this time it is flood, and it is no joke. But at this stage, to change the rules on folks, I have no problem with the prospective restructuring, which is on numerical ratios like the cost/benefit ratio, like the matching shares.

But to plug in criteria which discriminates against a region of the country or to talk about doing it on a reach-back is I think unfair, and perhaps a harder word would be unkind, to these people who entered into an agreement with the Federal Government in good faith and have honored their side of the agreement.

Mr. FAZIO. I think we all agree it is unacceptable, and whether not would be agreed to with any fairness out of this Congress at all.

Mr. THOMAS. That kind of a mindset inside the structure, when I had a Colonel from the Corps visit me and ask what have you guys been doing to fight this? I don't see is a strong understanding and support. If we are the ones who have to change direction—I will tell you my biggest problem has not been with this committee or this Congress; it has been inside the Corps of Engineers who I believe have taken the money that you folks have duly voted for this area and have spent it on projects that they deem to be more appropriate in moving through on feasibility phases and the rest.

They manage and manipulate money in ways that I believe do not directly reflect the will of this subcommittee, committee or Congress, and it is manifest most directly by this kind of a decision and their failure to be adamantly opposed to these kinds of criteria, especially in a retrospective way.

Thank you for letting me vent myself.

Mr. MYERS. We have heard it before.

Mr. BEVILL. I think everybody would agree, it is not going to go into effect.

Mr. THOMAS. How do we change the mindset that produced this in the first place? I want to go back to the mindset that thought this would be something that would work in the first place.

Mr. BEVILL. It is not the Corps of Engineers.

Mr. THOMAS. Then we will do something about that next year.

Mr. MYERS. Next year is election year.

Mr. THOMAS. Thank you.

[The statement of Mr. Thomas follows:]

Statement of the Honorable
WILLIAM M. THOMAS
Member of Congress, 21st District of California
House Committee on Appropriations
Subcommittee on Energy and Water Development
March 29, 1995

Thank you, Mr. Chairman and members of the Subcommittee, for this opportunity to testify today in support of funding for projects being conducted by the Army Corps of Engineers in my district. In addition, I would like to introduce Kern County Supervisor Mary K. Shell, who will provide testimony regarding the Caliente Creek Flood Control Project in Kern County, California. Also, Mr. Richard L. Schafer, Secretary-Watermaster for the Tule River Association, will be testifying about the Success Reservoir Enlargement Project, located in Tulare County, California.

Before I address specific projects, I would first like to respond to the Administration's proposal to limit federal participation in development of water resources infrastructure. I am outraged by the inclusion of this unspecified proposal in the President's FY 1996 Budget to restrict the U.S. Army Corps of Engineers participation in water resources projects to those having "national significance." The proposal would preclude the Corps from participating in the majority of new projects, or changes to existing projects, for flood control, hurricane and storm damage protection, and shoreline erosion control. In those limited cases where participation would continue, the benefit-to-cost ratio of the project must be at least 2:1, and the non-Federal sponsor's share would increase from 25% to 75%.

The President's proposal is anti-California, anti-West, anti-need and defies common sense and logic. It disproportionally affects western states, which historically were not partitioned along geographical boundaries like many states in the east, but along lines of latitude and longitude. It further evidences this Administration's lack of understanding and appreciation of western issues, and effectively abandons many local communities composed of US taxpayers who have traditionally relied on Corps projects for public safety.

This unjustified and politically-motivated reversal is especially detrimental to the residents of Kern and Tulare counties, both of which were recently listed as federal disaster areas by the Administration due to severe flooding. I find it unthinkable and unfathomable that the Administration would first declare these areas a federal emergency zone, then change its policies and turn its back on these very same communities. It shows the shallowness of the Administration's concern for the taxpayer and the states. The Corps is uniquely qualified and has the historical responsibility to provide flood protection to these communities, which it would be forced to forego under the Administration's callous proposal. Isn't it ironic that we can't tell the people who are suffering from the floods and receiving federal disaster aid that there is any hope for future relief. This is outrageous.

CALIENTE CREEK

Caliente Creek was the nation's first federal project in which a 50-percent cost-sharing agreement between local interests and the Army Corps of Engineers funded the feasibility study. Twice in the last 16 years, once in 1978, and again in 1983, flood damage to both agricultural and urban lands in the vicinity of Caliente Creek totaled more than $36 million dollars. Now, high flood waters in Kern County have forced the federal government to declare the County a disaster area, and it is even more obvious that some kind of flood control project is desperately needed on Caliente Creek.

In 1991, the Corps completed its examination of new flood control alternatives for Caliente Creek, and both the Corps and the local sponsors are confident that at least one of these alternatives -- involving flood water management as opposed to the previously-proposed watershed control structures -- will prove to be feasible.

Each year the local sponsors commit themselves to paying their share of the cost of the feasibility study to develop the flood water management plan. Each year these local entities -- the County of Kern, the Kern County Water Agency -- along with the cities of Arvin and Lamont have dutifully met their annual obligations under the previous cost-sharing agreements. In 1986, the share was $36,000, in 1987, $241,000. Each year since then the local sponsors have met their obligation, confident that the Corps of Engineers would hold up their end of the bargain.

Now, the President's budget for FY 1996 includes $171,000 for the Corps to complete feasibility-level work on such a plan. With an even greater level of contribution coming from the local sponsors, the participants should be able to finish this study by January of 1996 and forward a draft report to the Corps' Washington, D.C. office for more detailed analysis.

Mr. Chairman, I have appreciated the Subcommittee's support of this project in the past, and I am hopeful that I can continue to count on that support. Over the last twelve years, the local sponsors have faithfully contributed their share of the costs, but have received little from the federal government in return. By necessity, however, they remain firmly committed to seeing this enterprise through to completion. In furtherance of that objective, I respectfully request the addition of statutory language designating an appropriation of $171,000 for the Corps of Engineers to continue and complete feasibility-level work on the Caliente Creek Flood Control Project within the 1996 fiscal year.

However, I am particularly concerned that after contributing a total of $1.2 million of the $4.1 million feasibility study, the local residents will receive virtually nothing -- a feasibility study -- just a piece of paper -- should the Corps of Engineers forsake their responsibility to the community and fail to move to the next phase of the project. I would urge the Subcommittee to hold the Corps to the commitment which they made nearly ten years ago -- that once the study phase is completed, construction of the project, if feasible, could begin.

SUCCESS RESERVOIR

The Success Reservoir currently provides flood control and water conservation in the Tule River basin, which encompasses the urban area of Porterville, as well as downstream agricultural lands within Tulare and Kings Counties, California. The agricultural products from this area create gross revenues in excess of $200 million each year.

However, these areas are still prone to flooding, as past history demonstrates. Estimated damages from the Tule River floods of 1966 and 1969 totaled $5 million, and additional flooding occurred in the Tule Lake basin in 1978, 1980, 1982 and 1983.

The Success Reservoir Enlargement Project would raise the spillway of the reservoir by 10 feet, increasing its storage capacity by 28,000 acre feet and nearly doubling its flood control capacity. At its current height, the dam provides flood control sufficient to protect against a 60-year flood. With a ten foot higher spillway, the dam would be able to contain a 100-year flood.

At this time, the Corps of Engineers is conducting an updated seismic analysis of the dam structure, with funding from their Operations and Maintenance (O & M) budget, to determine the stability of this structure. Given the fact that earthquake prediction is not an exact science, I am concerned that the Corps complete this study as soon as possible in order to determine the safety of the dam and, if necessary, identify any remedial actions. It is the Corps' responsibility to ensure that this dam meets the relevant safety standards, using the most up-to-date analytical techniques. Any delay in the completion of this study risks the lives of the tens of thousands of people who live below the Success Reservoir.

In 1993, this Subcommittee directed the Corps of Engineers to complete the remaining phases of the seismic study and report its conclusions to Congress no later than July 1, 1994. Unfortunately, the Corps was unable to meet that deadline.

In August of last year I met with General Williams, the Commander of the Corps of Engineers to address the constant delays and cost overruns in the Success project. At that time, General Williams agreed to compress the schedule and complete the study in fiscal year 1996. In order to accomplish this, the Corps needed to increase their FY 1996 funding request to $700,000.

In order to provide for expeditious progress on this study, I respectfully request that the Subcommittee include statutory language designating an appropriation of $700,000, which is the amount included in the President's budget, to continue and complete the seismic study of the Success Reservoir dam. I fully expect the Corps to use these funds to live up to the commitment which they made to the Tule River Interests, and to me, to finish the seismic studies in Fy 1996.

In preparing their report, the Corps should concurrently perform an analysis of the stability of the structure with a raised spillway, in accordance with the direction given by Congress in the FY 95 Energy and Water Appropriations bill. The sponsors of the Success Reservoir Enlargement Project have been awaiting the results of this seismic analysis in order to determine whether or not their plans to raise the spillway by ten feet, providing greater flood control and water conservation, are feasible. Since the Corps is conducting an analysis of the stability of the structure at its current height, the stability with a ten- or twenty-foot higher spillway should be completed simultaneously.

Between 1986-1992, the Corps expended $1,348,000 working on the Success Reservoir Enlargement Feasibility study, of which the local share totaled almost $530,000. Then this interim report was placed on hold pending the completion of the seismic study. At the direction of General Williams, the Corps last year decided to complete the feasibility study with the inclusion of new Corps policies, added long after the cost-sharing agreement with the local sponsors was made. The cost estimate to redraft the study to current standards would be $1.5 million. After an investment of nearly ten years and $1.3 million, the Corps feels the need to ask the local sponsors and the American taxpayers to accept another investment of $1.5 million and years of wasted time.

This is totally unacceptable. The Corps of Engineers need not begin the project anew. With the framework of the nearly-completed feasibility study from which to begin, the Corps should easily conclude the study with the inclusion of $200,000 in the 1996 Appropriations Bill. This $200,000, matched with a local share, should provide an adequate budget for the completion of this long-overdue study for the Corps to report back to Congress in time for consideration in the Water and Resources Development Act of 1998.

Mr. FAZIO. I want to go to a colleague on the committee who has been a great friend even before he was a Member of this subcommittee, Ron Packard.

Mr. PACKARD. I have no prepared statement, I will submit a letter to you and the Chairman later.

I want to recognize that there are people from the audience from my district that will be testifying later, the Mayor and the City Council from Oceanside and other places in Orange County and San Diego County.

Thank you.

Mr. FAZIO. Now a friend of mine from Orange County by way of New Hampshire, Bob Dornan.

Mr. DORNAN. Let's get back to complimenting the committee and hugging the Members. Only Mr. Fazio would know before he went distinguished with his hair color, that the school teachers tend to pick out the kid with green hair or red hair because there are so few of them, and pick on them so, I know all about how to get the attention of authority.

At the buildup of the 50th Commemoration of D–Day at the Air and Space Museum, I noted two particularly striking and handsome pictures of young warriors. One was a movie star like the Captain from Alabama named Tom, and then there was a picture of a guy too young to even be in uniform with his overseas cap peaked like a paratrooper.

I looked at this baby face and found out it was our Chairman, and that at 21 years of age he was the commander of a prison camp for ex-Nazis.

Mr. MYERS. Nineteen.

Mr. DORNAN. And dispensed mercy and justice to them that they had not given to their fellow Europeans.

There is another farm story I would like to tell. When I was sitting in on the most-listened-to radio show maybe in history, talking about one of my favorite pet peeves, Country Club Republicans, people who ride around in limousines all afternoon, live in gated communities. I heard about a farmer who went into a field to a farmer in Indiana, who was covered in tractor grease up to his shoulders, and he said, Mr. Myers, does this guy Dornan know about you out here repairing your tractor in your field?

I check on what you do, Mr. Chairman.

Mr. MYERS. Ain't confession good for your soul.

Mr. FAZIO. $70 million for the Santa Ana Project.

Mr. DORNAN. The gentleman knew the figure. Just a technical correction, $70.249 million, and I have always come here and talked about the horror of Disneyland being underwater.

Just let me touch on one part of my written testimony. I will submit the rest, having embraced my colleagues from afar; that the 100-year dreaded flood—it can happen. We have seen it up North. I have a picture of James Dean, who only did three films, running through the lettuce fields in Monterrey. So when Sam Farr was sitting here, I understand the pain he was talking about. It is not just crops that would be destroyed; it is $15 billion of property and from 100 to 3,000 lives, depending on if we got one of those Mississippi River Basin-type floods in the area—so the Santa Ana Mainstream River Project, $70.24 million.

The other that I am pleased that the committee is looking at, I am very pleased to report construction is on time. It is in progress, and most exciting, most appropriately for an appropriations process, under budget. So for those reasons, I am asking for that $70.24 million.

Project 2, Orange County Regional Water Project. Mr. Packard is my champion on the committee on this. I am asking for $600,000. It is a local water supply recycling wastewater currently discharged into the ocean. By doing this, it reduces Orange County dependence on imported water from the Colorado River, freeing up water for Mr. Fazio's district in the Sacramento, San Joaquin Delta area, and their very great needs. So there is $600,000 there, $70 million on the other.

What a great committee. There is not too much fun left in the House these days. Those in the newly reconstructed minority realize that; but appearing before this committee is the highlight of my month, New Hampshire and Iowa, notwithstanding.

Thank you gentlemen.

Mr. MYERS. Good to have you back, Bob.

Mr. DORNAN. Any time I will come back and show mercy to the folks in Disneyland and the low-lying areas of a river named after a city named after the grandmother of Jesus Christ, Saint Ann.

Thank you.

Mr. FAZIO. There we go.

[The statement of Mr. Dornan follows:]

Testimony of Rep. Robert K. Dornan
Appropriations Subcommittee on Energy and Water Development
Chairman, John T. Myers
"California Day"
March 29, 1995

Thank you, Mr. Chairman, for the opportunity to testify on behalf of two important water projects in Orange County, California, the Santa Ana River Mainstem Project and the Orange County Regional Water Reclamation Project. I am requesting that the subcommittee support $70.249 in new funding, as requested by the President, for the Santa Ana River Mainstem Project, as well as $600,000 for the Orange County Regional Water Reclamation Project in the FY96 Energy and Water Appropriations legislation. At a later time you will be hearing from Bill Mills of the Orange County Water District, Bill Zaun of the Orange County Flood Control District, Don Martinson of the Santa Ana River Flood Protection Agency, and Bob Bein of the Orange County Business Council who will speak on behalf of these projects.

The Santa Ana River Flood Protection Agency represents eighteen cities and three special districts within the flood plain of the Santa Ana River in Orange County. The citizens of Santa Ana are rightly concerned about their safety and well-being due to the potential flood threat from the Santa Ana River. It has been well documented by the United States Corps of Engineers that property damage could amount to $15 billion and loss of life could approach 3,000 lives should a major storm event occur. The resulting disaster would be far greater than the Mississippi River flood.

Citizens of Orange County thought they had a high level of protection by the construction of Prado Dam after the major flood in 1938. However, since the construction of that dam in the 1940's, the level of protection provided by this facility has seriously deteriorated because of upstream development and the accumulation of sediment and vegetation within the reservoir area. Therefore, the continued construction of the Santa Ana River Mainstem Project is essential to prevent the occurrence of a major disaster.

The Santa Ana River Mainstem Project is designed to provide flood protection to the growing urban communities in Orange, as well as Riverside and San Bernardino, counties. The project will increase levels of flood protection to more than 3.35 million people within the three county area. The project will also provide for environmental features including enhancement of a degraded marsh area at the mouth of the river, thereby providing significant value as a wetland habitat for migrating waterfowl and for the California least tern, a federally listed endangered species. The project will also provide increased recreational opportunities through related developments on the lower Santa Ana River and Santiago Creek.

I am pleased that the Appropriations Committee has, since FY90, consistently supported funding of the Santa Ana River Mainstem Project. I am also pleased to report that construction is on time, in progress, and, more appropriately, under budget. For these reasons, I am requesting that the subcommittee support the Clinton Administration's request for $70.249 million in new funding as part of the FY96 Energy and Water Appropriations legislation.

The second project I would like to speak about is the Orange County Regional Water Reclamation Project, of which I am requesting an appropriation of $600,000. This project will produce a new, cost-effective, local water supply by recycling wastewater that is currently discharged into the ocean. By recycling wastewater currently discharged into the ocean, Orange County will be able to use reclaimed water to maximize the storage capabilities of the groundwater basin and reduce Orange County's dependence on imported supplies. This project will subsequently reduce the region's dependence on Colorado River supplies and allow California to allocate additional water for meeting the environmental needs of the Sacramento-San Joaquin Delta. The project will also incorporate microfiltration which represents cutting-edge technology for reclaimed water treatment. Furthermore, it will produce a new, local water supply at a cost comparable to purchasing imported water. Indeed, it is anticipated that the proposed project will produce water of an equivalent or better quality than the Santa Ana River water currently used for groundwater recharge.

I am requesting that the Subcommittee approve $600,000 in grant funding from the U.S. Bureau of Reclamation's FY96 budget to assist in the development of the environmental study, health effects study, public outreach program, and preliminary design for Phase I of the Orange County Regional Water Reclamation project. The Orange County Water District and the County Sanitation Districts of Orange County will provide matching local funds of up to $1.8 billion for these activities.

Thank you, Mr. Chairman, for the opportunity to testify on these important water projects.

Mr. FAZIO. John Doolittle.

That is a tough act to follow.

Mr. DOOLITTLE. I won't even attempt to follow it, Mr. Chairman. I have written testimony, which I will submit.

I am here particularly to support the Sacramento Metropolitan Water Authority's request for funding for their crucial water management plan to isolate the groundwater contamination in Sacramento County with their four Superfund sites and to protect the health, safety and welfare of the 1.1 million people in the region.

I would also like to support my former district comprised of San Joaquin County, both Stockton East, City of Stockton, San Joaquin requests, particularly focusing upon the American River Folsom South Optimization Study, the Auburn Folsom South Unit and the Stockton Metropolitan Area Study, all of which I think are meritorious and they deserve your support.

Mr. FAZIO. Thank you, John.

We look forward to working with you as Chairman of that subcommittee on Water Power and Resources.

Is that an Adam Smith tie you are wearing?

We will spend money anyway.

[The statement of Mr. Doolittle follows:]

STATEMENT BY
THE HONORABLE JOHN T. DOOLITTLE

before the
Subcommittee on Energy and Water Development
of the
House Committee on Appropriations
on
March 29, 1995

Thank you Chairman Myers and Members of this Subcommittee for the opportunity to appear here today at the annual "California Day" hearing on behalf of several projects I believe are instrumental in providing long-term solutions to the serious water issues facing my district and the entire Central Valley region.

It is great to see my California colleagues on this Subcommittee, Mr. Riggs and Mr. Fazio, working together in a bipartisan fashion to find ways to address the needs of the California water community. Given the difficult fiscal climate and the competing interests in the area of energy and water development, I do not envy the task which is before you today and in the coming weeks.

First, I ask this committee provide $230,000 in emergency funding to repair the Bureau of Reclamation American River Facilities' access roads to the Placer County Water Agency (PCWA) pump stations, pipeline and tunnel inlet. These roads suffered severe damage the winter storms. Erosion removed a steep section of the road and a culvert on a hillside and obliterated the road where it crossed the old river channel. Another section of the road is blocked by a landslide.

The land purchase contract whereby the Bureau of Reclamation acquired the original pumping plant site and other lands within the Auburn Reservoir area from PCWA requires that the Bureau provide a substitute pumping plant whenever PCWA needs water from the American River. PCWA has informed the Bureau they expect to need the pumping plant this year. Unless action to repair the roadway and replace the bedding is initiated immediately, the Bureau will be unable to meet the contract terms and western Placer County will be without water in late summer.

Second, I ask that this committee provide $800,000 for a study by the Army Corps of Engineers for the Stockton Metropolitan Area. Recently, the City of Stockton and San Joaquin County were notified by FEMA that the existing flood control system in the Stockton area does not provide adequate flood protection. In addition, where most of the community was previously considered outside the floodplain, FEMA now proposes to designate as flood-prone the entire city and surrounding area of approximately 300,000 residents.

The City of Stockton and County of San Joaquin are moving ahead with plans to provide all the funding upfront, if necessary, to expedite the restoration of the flood protection system. Because most of the existing system was constructed and is maintained by the Army Corps of Engineers, the community needs the participation of the Corps in this effort. Immediate congressional action is required to ensure that the regional economy is not damaged by the uncertainty related to potential flooding and costly long-term building requirements.

The amount of money we are seeling is sufficient to begin the reconnaissance study of the metropolitan area streams. It can also be used to study the potential benefit of adding the Farmington dam as a component of the region's flood protection and water storage plans. However, priority should be given by the Army Corps of Engineers to provide flood protection for the Stockton metropolitan area.

This study is also important to help determine if the Farmington Dam could be used to store up to 160,000 acre feet of water. Farmington Dam is an earthen dam located along the conveyance from New Melones Reservoir. However, it is necessary to determine the seepage and whether it is necessary to raise the level of the dam. This is a federal resource that is sitting dormant where there is a local need. I hope this Subcommittee will fund this project as a I believe that it holds great promise for both conjunctive use and flood control.

In addition, Mr. Chairman, I support the American River Optimization Study of the Folsom South Canal. This investigation is critical to the full utilization of the conjunctive use of the Stanislaus and American Rivers. This investigation is supported by the California Water Commission.

Another California project that merits consideration is the Glenn-Colusa Irrigation District Fish Screen which requires federal appropriations of $3 million in FY 1996 to advance work on a permanent new fish screen at Glenn-Colusa Irrigation District's Hamilton City Pumping Plant.

The screen will allow the District to meet its water needs without jeopardizing the endangered winter run Chinook salmon. Regulations promulgated under the Endangered Species Act now restrict GCID to just 65 percent of its water entitlement. Projects such as the GCID fish screen benefit all project users because they reduce the need to divert water from agricultural, municipal, and industrial purposes to fish protection.

Finally, Mr. Chairman, I would like to express my strong support for continued funding for alternative screening technologies, including those that use electronic barriers and other means to divert fish away from water pumping facilities. Last year, Congress provided $2 million for these technologies. A similar investment in fiscal year 1996 is needed.

As always, I will be happy to work with you and other members and will answer any questions you may have about the merits of the projects I have brought before you.

Thank you, again, for the opportunity to appear here today.

Mr. FAZIO. Chris Cox.

Mr. COX. Good morning.

I would like also to acknowledge some people who are here from California, Bill Zorn, who is the original County Director of Public Works; Bob Bine, of the Orange County Business Council, both here in recognition of the enormous importance that our regional leaders place on completion of the Santa Ana River Mainstem Project which this subcommittee began funding in 1989. It has continued, on schedule and on budget since that time and, of course, we are all here today to make sure that continues into the future.

As you know, the Army Corps of Engineers has made good progress in the construction of this project. It begins at the Pacific Ocean, goes 60 miles inland through Orange County into San Bernardino County. Sixty miles from the ocean is Seven Oaks Dam in San Bernardino County. The dam is now under construction. Lands are being acquired for enlargement of the existing Prado unit of the project.

As Bob Dornan said, as Ron Packard will tell you, as I know Tom Bevill is aware, because you have seen this, and I know that our Chairman is aware of this—we call it the 100-year flood. It is the most serious flood threat West of the Mississippi, but it isn't going to be 100 years from now necessarily when this happens.

This month, we had 12 people die and $2 billion worth of damage as a result of flooding in California. When it happens, it is rather vicious. But what we know has happened in this area of southern California in the past is the following: In 1862 and 1938, the floods covered half of the entire area between the San Bernardino mountains and the Pacific Ocean. Then that was farmland. It is now heavily populated. It is the most urbanized area in California.

If those same floods were now to occur, it would wipe out half the acreage between Anaheim and the Pacific Ocean. Actually, it would wipe out most of the acreage there, 110,000 acres.

Actuaries tell us that it would kill not 12 people, but 3,000. The loss of homes would be over half a million, and to put that in perspective, that is about four times as many homes as there are in the District of Columbia. So without warning, you would destroy all the housing in the District of Columbia four times over.

It is an extraordinary concept, but we are working on it and we are being responsible as legislators and public servants and we hope that this project gets built before something happens, as happened in 1862 and 1938. I am confident that will be the case.

I appreciate the responsibility that you have exercised on this subcommittee to make sure that is true.

There are a couple of small projects that I would like to mention. The California Water Commission has recommended a $600,000 appropriation for the reclamation project that Bob Dornan described. When completed in 2020, if you decide to go forward with it, it will produce 32 trillion gallons of water a year from what is currently wastewater and thrown away into the ocean. That is about 20 percent of all the water usage of all the people in this water district.

It will directly free up water in northern California and water usage from the Colorado River, and I think it is a very wise public decision for us to proceed with this.

Second, the City of Newport Beach has requested $250,000 for the Army Corps of Engineers to conduct Upper Newport Bay Harbor investigations to study how best we can comply with environmental requirements and make sure that we prevent material flows from the upper bay into the main harbor. Right now, those flows are effectively undoing the extensive restoration efforts that have already been undertaken to maintain that harbor, so this work is vitally necessary.

Lastly, I am asking for $1.75 million to assist the Corps of Engineers in repairing the entrance jetties to the Pacific Ocean in my part of California. The jetties in Newport Harbor have been trouble free for 50 years, they haven't been repaired. We want to make sure we do the maintenance that is now required to make sure that the greater damage does not occur.

The request represents a solid investment that would allow the local governments there to maintain a high visibility harbor navigational entrance on the Pacific Ocean.

I appreciate the Subcommittee's consideration of each of these requests, and you probably appreciate the fact that I am your last witness.

[The statements of Mr. Royce, Mr. Mineta, and Mr. Matsui follow:]

Testimony of
U.S. Rep. Ed Royce
Before the
House Committee on Appropriations
Subcommittee on Energy and Water
Hon. John T. Myers, Chairman
March 29, 1995

Mr. Chairman, Members of the Committee, thank you for the opportunity to testify in support of the Administration's request for funds to continue construction of the Santa Ana River Mainstem Project. We appreciate the Committee's past support of this vital project, which is designed to prevent flooding in Orange County. Recent storms have only confirmed the need for this project and the Committee's foresight in its past actions.

As others will testify, construction is in progress on the project and it is on time and under budget. The local sponsors have met their cost-share obligations. As you are aware, the County of Orange is in dire fiscal straits. However, the flood control district is not bankrupt and will be able to meet its obligations on this project. I thank you again for your past support and urge continued funding for this project.

Mr. Chairman, I also want to support the Orange County Regional Water Reclamation Project. By recycling wastewater which is currently discharged into the ocean, this project will help reduce the County's reliance on imported water and allow California to alocate additional water to meet the needs of the Sacramento-San Joaquin Delta. Your attention to these requests is most appreciated.

testimony by
NORMAN Y. MINETA, M.C.
before
House Appropriations Subcommittee on
Energy and Water Development
March 29, 1995

Mr. Chairman, thank you very much for the opportunity to testify before you today and to introduce representatives from the Santa Clara Valley Water District and the City of San Jose.

As you may know, in these first few months of 1995 we have experienced torrential downpours and costly flooding in Santa Clara County. Unprecedented rainfall in January and March resulted in rivers spilling their banks; flooding of residential areas, business districts, and highways; and millions of dollars of damage. President Clinton declared Santa Clara County a Federal Disaster Area. The flooding that we experienced makes even more clear the need for adequate flood protection in our area.

Later today, Mr. Chairman, you will hear testimony from Rosemary Kamei, the Chair of the Board of Directors of the Santa Clara Valley Water District. Rosemary will tell you more about the flooding we have experienced and about the ongoing flood control work that the Water District is conducting.

Mr. Chairman, in the past this Subcommittee has solidly supported funding for the Guadalupe River and Coyote and Berryessa Creeks flood control projects, and for studies of the Upper Guadalupe River and Penitencia Creek. As the recent flooding makes clear, it is essential that these projects be completed on time to prevent more damage by future floods. I ask that your past support for these projects continue and that the Subcommittee fund these projects at the levels requested in the President's FY 1996 budget proposal.

Also today, you will hear from the Honorable Trixie Johnson, a member of the San Jose City Council and the Vice Mayor of San Jose. She will be discussing the San Jose Area Water Reclamation and Reuse Program, known as South Bay Water Recycling.

This future-looking project will reduce the effluent that flows into the San Francisco Bay -- thereby meeting the discharge requirements established by the Environmental Protection Agency -- and reuse the water for non-potable needs in the area. It is an important project that will help to ensure that the water needs of Santa Clara County will be met in the years to come.

Again, Mr. Chairman, I urge the Subcommittee to support this worthy project and I thank you for this opportunity to testify before you.

STATEMENT OF THE HONORABLE ROBERT T. MATSUI
BEFORE THE
APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT IN SUPPORT OF FLOOD CONTROL PROJECTS IN SACRAMENTO

MARCH 29, 1995

Mr. Chairman and Members of the Subcommittee, I thank you for allowing me this opportunity to offer my support for these water development projects in my district. Your consideration and hard work on these important projects is vital for managing the nation's waterways and preventing flood catastrophes.

I appreciate the Subcommittee's efforts to date to address the dire flood control projects in the Sacramento region. The Subcommittee's support has been an immeasurable help in moving ahead to implement prudent measures that protect billions of dollars of homes, property, businesses, and agricultural crops.

Sacramento flood control efforts have been developed in close cooperation with the Sacramento Area Flood Control Agency (SAFCA), the State of California, the U.S. Army Corps of Engineers, and the Bureau of Reclamation. All these parties have recognized the need for flood control to protect the residents of Sacramento and are seeking to propose a feasible and cost-effective solution.

There is no question that delayed implementation of the American River flood control project has been costly. The original efforts to build a flood control dam were literally washed away in 1986. Then in 1992, Congress' decision not to authorize the revised American River Selected Plan further delayed providing adequate protection for the 400,000 residents living in the Sacramento and American River floodplain. This year offered yet another ominous reminder of our region's vulnerability when January and March rainstorms brought major floods. So far, state and federal disaster aid for these floods has totalled nearly $110 million.

I would appreciate the Subcommittee's consideration in providing fiscal year 1996 appropriations funding for the flood control projects listed below, as well as a new permanent fish screen for the Glenn-Colusa Irrigation District.

1. **The American River Project**--$3 million to complete Pre-Construction, Engineering, and Design (PED) of the American River Flood Control Project.

The President's budget included $3 million for continuation of Pre-Construction, Engineering and Design on the American River Project. The process for deciding a locally-preferred alternative is currently on schedule for presenting the final project to Congress for action as part of the 1996 Water

Resources Development Act. An Alternatives Report was produced by the Corps in FY95. Now the Corps is currently undertaking a further study of two alternatives. The $3 million budgeted for FY96 is critical for the Corps to complete a Supplemental Information Report and Environmental Impact Statement. I strongly urge the Subcommittee Members to support the President's budget of $3 million.

2. **South Sacramento Stream Group**--$500,000 to continue a Feasibility Study to address flood risks in South Sacramento.

The President's budget included $500,000 for continuation of a Feasibility Study for a flood control project on the South Sacramento County Stream Group which includes Morrison, Laguna, Unionhouse and Elder Creeks. These creeks are subject to a high level of risk as was demonstrated during the recent heavy flooding there this spring.

The Sacramento Area Flood Control Agency is already prepared to begin construction on the most critical features of the project using local funds and request future credit should a project ultimately be authorized and construction appropriations be approved.

3. **Magpie Creek (a Section 205 Small Project)**--Continued funding for Section 205 Projects to complete Pre-Construction, Engineering and Design (PED).

I would also like to support the continued funding for this Section 205 Small Projects Program. Recently completed studies on the existing federal flood control project at Magpie Creek show this system is inadequate and providing less than 100-year flood protection. The recent Feasibility study identified a cost effective project which can provide a high level of protection to properties both on McClellan Air Force Base and downstream. The Air Force would bear the costs of making channel improvements on the base property, and I am requesting funds for construction of downstream improvements. Local authorities are ready to commence relocation and right-of-way acquisition to expedite the project.

4. **Sacramento River Bank Protection**--Continued funding to study and rectify serious bank erosion adjacent to the American River levees through urban Sacramento.

Funding is urgently needed to support the effort by the Corps of Engineers to address the erosion of riverbank under the primary levees along the Sacramento River Flood Control system. Several areas along the 26 mile stretch of the American River below Folsom Dam have already begun eroding and could have serious effects on the integrity of the adjacent levees and destroy valuable habitat.

5. **Fish Screen at the Glenn-Colusa Irrigation District--** An allocation of $3,000,000 is needed to complete the design and engineering work and initiate construction on a permanent fish screen at the Hamilton City Pumping Plant.

This funding is important in order to advance work on a new fish screen that would allow the Hamilton City Pumping Plant to supply water users throughout the Central Valley of California. Currently the supply of water to agricultural users in the Glenn-Colusa Irrigation District is limited to 65% of the full allotment. A new fish screen would allow additional fields to be farmed and also enhance the recovery of endangered winter-run chinook salmon.

Mr. Chairman, once again I would like to thank you and your Subcommittee for providing me with this opportunity to offer my support for these important projects. This Subcommittee has been thoughtful and supportive of Sacramento water development needs in the past, and I look forward to working with you on these projects.

STATEMENT OF THE HONORABLE ROBERT T. MATSUI BEFORE THE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT IN SUPPORT OF FLOOD CONTROL PROJECTS IN SACRAMENTO

MARCH 29, 1995

Mr. Chairman and Members of the Subcommittee, I thank you for allowing me this opportunity to offer my support for the Sacramento Watershed Management Plan. This Management Plan is needed to address the growing groundwater contamination in the Sacramento region. Groundwater is a vital source of drinking water, and the region's need to develop a plan to prevent the spread of underground toxic plumes has become critical.

The Sacramento Watershed Management Plan is an integrated, comprehensive approach to better use the water supplies in the regional watershed through conjunctive use, utilization of reclaimed waste water for greenbelt and agriculture, and drawing on surplus winter surface water flows. These improved efficiencies and conservation efforts will enable groundwater supplies to be recharged and concurrently, will help to contain the movement of contaminated water.

The Sacramento Metropolitan Water Authority (SMWA) is a joint powers authority that serves over 400,000 customers in the Sacramento area. SMWA is seeking $1,625,000 to implement Phase I of the Management Plan in order to undertake planning and design of the program. I urge your support for the Sacramento Watershed Management Plan. Thank you.

Mr. FAZIO. I want to thank all Members who came, but also to apologize to our friends from California. We may have to start the hearing a half-hour earlier in the future. In a year, with events of flooding in California, you understand many Members want to appear and plead their district's needs.

I will turn the gavel over to Mr. Riggs.

Mr. MYERS [presiding]. Thank you for chairing this morning. We do apologize to the California delegation, especially the folks representing the delegation here. I hope now you have 1 o'clock flights.

At this time in a bipartisan spirit, the gavel will be turned over to Mr. Riggs of California, the other half of the California show.

I am going to another committee. We have a conference going on with the Senate.

Mr. RIGGS [presiding]. I, too, would like to welcome the witnesses this morning.

We have, obviously, have a large and distinguished group, and we would apologize for running a little bit over schedule in hearing the testimony of our colleagues. Many of them were here to speak about vitally important projects and to express concern regarding the policy articulated by OMB.

I am sure some of our witnesses will be touching on their concerns with regard to that policy.

WEDNESDAY, MARCH 29, 1995.

CALIFORNIA PROJECTS

WITNESS

AUDREY Z. TENNIS, CHAIR, CALIFORNIA WATER COMMISSION

Mr. RIGGS. We are going to go to our first panel.

I would also like to thank Mr. Fazio for his leadership and coordination on arranging the testimony of the Members of the California delegation.

From the California Water Commission, the Chair will recognize Audrey Tennis, the Chair of the Commission.

And let her introduce her companions.

Ms. TENNIS. Mr. Chairman, I am Audrey Tennis, Chairman of the California Water Commission, and we are here today with another committee member.

Our commission is charged by statute with representing State and local interests before your committee and we coordinate our presentations with those to be given by the local agency representatives.

Prior to introducing the representatives, I would like to make a few general remarks. In January of this year, President Clinton came to California to see firsthand some of the flood damage and pledged to help wherever he could through Federal programs. But less than three weeks later a press release came from his administration effectively eliminating the U.S. Army Corps of Engineers from flood control activities in support in California.

The proposed criteria which would accomplish this is something that everyone is familiar with and has been articulated by many Members of Congress. So it should come as no surprise that we have received the same negative reaction to this proposal at virtually every turn.

We understand that these three criteria are currently being reexamined by the Corps of Engineers and the Office of Management and Budget. We support that reexamination. It is well understood that the administration and this Congress faces tremendous obstacles in their efforts to reduce Federal spending and move toward a balanced budget.

While broad reductions in agencies and programs are obviously forthcoming, the Corps' proposal is flawed and we are urging Congress to review all aspects of the Corps' budget and to prioritize projects based on fair criteria that considers the legitimate needs of all Federal taxpayers.

I will dispense with the rest of my testimony. It has been submitted.

I would like to conclude by saying that the commission supports our final recommendations for fiscal year 1996. They have been turned in to you. The document contains recommendations adopted by the commission at its meeting March 3rd, 1995. I will turn now to our people representing our various projects.

State Reclamation Board, Raymond E. Barsch, General Manager.

[The statement of Ms. Tennis follows:]

STATE OF CALIFORNIA - THE RESOURCES AGENCY
PETE WILSON, *Governor*

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CALIFORNIA WATER COMMISSION
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STATEMENT
OF THE
CALIFORNIA WATER COMMISSION

Before the
United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

By
Audrey Z. Tennis, Chair
California Water Commission

March 29, 1995

Mr. Chairman and Members of this Committee - I am Audrey Tennis, the Chair of the California Water Commission. The Commission is an official agency of the State of California. It is composed of nine representative citizens from throughout the State. The Commission is charged by statute with representing the State and local interests before your Committee. We have coordinated our presentations with those to be given by local agency representatives. On behalf of the California Water Commission, I would like to express our sincere appreciation of the support this Committee has given California water, flood control and fisheries projects over the years. I am privileged to appear before you with the official recommendations of the State of California for Fiscal Year 1996 appropriations.

Prior to introducing the representatives of the local agencies who will speak on specific projects, I would like to make a few general remarks:

On January 17 of this year, President Clinton flew into California to see firsthand some of the flood damage and pledged whatever help he could offer through federal programs. Less than three weeks later, a press release came from his administration effectively eliminating the U.S. Army Corps of Engineers from flood control activities and support in California.

We in the State of California have had a long relationship with the Corps of Engineers, starting back in 1888 when Congress authorized the Secretary of War to detail three engineering officers to investigate hydraulic mining and the flooding caused by the mining debris. In 1893, Congress passed the Caminetti Act creating the California Debris Commission. Later, in 1917 Congress adopted the Sacramento Valley Flood Control Project as recommended by the California Debris Commission. We have been working with the Corps in California for over 100 years.

According to the Corps' press release dated February 6, 1995:

> "Nationally significant missions of the Civil Works program will continue to include commercial navigation, interstate flood control, and environmental restoration. Nationally significant flood control projects will decrease damage which has been caused by waters which mainly originate from out of state. They also provide significant contributions to the national economy, in fact they must provide $2 benefit to every $1 invested. Because of the tight Federal budget dollar, the Federal share of these projects will be reduced to 25% of the cost, while the nonFederal share will be 75%."

This definition of "nationally significant" as it pertains to flood waters originating out of state is distressing. If the Sacramento River flowed into the Potomac River here in Washington, D.C., its headwater would be from three to six states away depending on which direction you would want to consider, but because the Sacramento River is all within California, it would not be considered of "national significance" under the Corps' new policy.

The same criterion would also eliminate consideration of potentially worthwhile Corps flood control projects in other states and thus can be characterized as discriminatory there as well.

The second criterion, a demonstrable benefit to cost ratio (B/C) in excess of 2 to 1, could eliminate many worthwhile programs throughout the United States, which are currently under way at some stage of reconnaissance -- feasibility -- P.E.D -- construction.

The truly frightening aspect of the Corps B/C process is that it is based only on economic loss, and does not incorporate a value for human life. Thus, preventing the loss of over a hundred lives in a major metropolitan area like Sacramento is apparently not of "national significance" since it would be considered only an "intangible benefit".

Perhaps most unrealistic, from a national perspective, is the third criterion under which the Federal cost share would be limited to 25% of the total cost. Why would local agencies and their citizen constituents subject themselves to years of delay in the Federal process in the hope of getting 25% of their costs paid? Experience shows that the 25% would be consumed in inflation, Federal overhead costs and project restraints.

This proposed policy would have an immediate and devastating effect on public safety and property damage in California. To give you a few examples:

- **The American River Watershed Flood Control Project.** This study has been cost-shared over the past several years with the Corps to the tune of over 5 million non-Federal dollars. Over this period of time many contracts, agreements, pledges and partnership meetings have been conducted between the Corps and the non-Federal cost-sharing agencies. Now only months away from Project Authorization, with 400,000 people and $38 billion in homes and businesses at risk from flooding, the Administration says, "Corps get out, this is not of 'national significance'."

- **Arroyo Pasajero Flood Control Project**. This area, as many of you know, made the news when 7 people lost their lives as a 120-foot section of Interstate 5 collapsed when floodflows raced down the arroyo on March 10, 1995. The flood control project which very well could have averted such a disaster is funded in the President's Budget; however, if the new Corps policy goes into effect, it would not be funded beyond the Feasibility stage. Perhaps with 200 miles of an Interstate Highway out of service and the Lemoore Naval Air Station subjected to flooding, the definition of "national significance" might be revised.

- **Kaweah River, Terminus Reservoir Enlargement**. A Feasibility Cost-Sharing Agreement was signed with the Corps of Engineers in 1988 by the Kaweah Delta Water Conservation District. KDWCD represents the Counties of Tulare and Kings and the City of Visalia. This project is vital for flood control, as well as water conservation. This project has received tremendous local support, which has contributed over $1.4 million toward the study costs. This project was zeroed out in the President's FY96 Budget, because of the proposed policy.

- **Caliente Creek Feasibility Study**. In 1985, Kern County Water Agency was one of the first local agencies in the Nation to sign a Feasibility Cost-Sharing Agreement for studies on Caliente Creek flood problems. Since then, they have expended about $1.2 million toward the feasibility study for flood control for the City of Arvin and the town of Lamont. A loss of Federal funds could set the project back many years while still being a risk from the present flood potential.

There are many other projects throughout California and the Nation where similar stories of local agencies being lead to the alter, only to be left standing.

The Corps of Engineers has over the years built a professional organization that has expertise and experience in flood control planning, design and construction. This policy would over a few short years, destroy what has taken decades to build.

It is well understood that the Administration and this Congress face tremendous obstacles in their efforts to reduce federal spending and move toward a balanced budget. While broad reductions in agencies and programs are obviously forthcoming, the Corps proposal is flawed. We are urging Congress to review all aspects of the Corps' budget and then prioritize projects based on fair criteria that consider the legitimate needs of all federal taxpayers.

Returning to this presentation, the Commission would like you to know that it supports projects as shown on the attached document entitled, *California Water Commission - Final Recommendations for Fiscal Year 1996 Federal Appropriations for California Water, Fishery and Flood Control Projects, March 3, 1995*. That document contains recommendations adopted by the Commission at its meeting on March 3, 1995.

RECOMMENDATIONS FOR ADDITIONAL FUNDS. The Commission is recommending additional funds be appropriated for several projects of the U.S. Army Corps of Engineers and U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service, which are summarized in the following table. Brief comments on the need for additional funds follow the table.

U.S. ARMY CORPS OF ENGINEERS

CWC No.	Project and County	President's Budget FY 1996	CWC Final Recommendation FY 1996	Page No.
General Investigations - Surveys				
101	Tehama-Hamilton City Flood Control Study (Tehama, Glenn)	--	--[1]	6
112	Sacramento River and Tributaries - Ecosystem Management Study	0	800,000	6
120	Stockton Metropolitan Area Study	--	800,000[2]	6
125	Reservoir Flood Release Coordination - San Joaquin River	--	75,000	7
134	San Joaquin River, Firebaugh and Mendota (Fresno)	0	150,000	7
135	San Joaquin Rvr., Arroyo Pasajero (Fresno) (Also see CWC 660, USBR)	700,000	700,000	8
139	San Joaquin River, Tule River Basin	0	200,000	8
171	Lower Mission Creek (Santa Barbara)	81,000	300,000	9
186	Mission Zanja Creek (San Bernardino)	0	300,000	9
187	Norco Bluffs, Santa Ana River (Riverside)	0	375,000	9
Preconstruction Engineering and Design				
201	American River Watershed	3,000,000	3,000,000	9
238	Kaweah River (Tulare) (Also see CWC 138)	0	500,000	9
Construction - General				
301	Upper Sacramento River - Golden State Island (1135)	0	500,000[3]	10
302	Sacramento River Restoration (Glenn) (Also see CWC 622, USBR)	0	300,000	10
305	Mid-Valley Area Levee Reconstruction	0	500,000	10
311	San Joaquin River, China Island Habitat Restoration (1135)	--	500,000[3]	10

[1] CWC supports Corps' recommendation that this project is to be funded under "Continuing Authorities" Program (Section 205)
[2] Stockton Metropolitan Area Study is proposed to include the Farmington Dam investigation.
[3] To be funded under "Project Modifications for Improvement of the Environment" Program (Section 1135)

U.S BUREAU OF RECLAMATION

CWC No.	Project and County		President's Budget FY 1996	CWC Final Recommendation FY 1996	Page No.
Construction Projects (Mid-Pacific Region)					
610	**Shasta Division**				
611	Temperature Control Device Shasta Dam	Federal	549,000	549,000	11
		Restoration	11,281,000	11,281,000	
		NonFed	0	0	
		Total	11,830,000	11,830,000	
612	Coleman National Fish Hatchery Modification		0	Support[4]	11
620	**Sacramento River Division**				
621	Colusa Basin Drain		--	750,000	11
622	Hamilton City Pumping Plant Fish Facility (Glenn) (Also see CWC 302, Corps)		0	3,000,000	12
623	Winter-Run Chinook Salmon Captive Broodstock Program		0	1,100,000	12
624	Red Bluff Diversion Dam Demonstration Research Facility Evaluation		0	1,300,000	13
625	Red Bluff Diversion Dam Fish Passage Program		0	1,000,000	13
660	**San Luis Unit - CVP** (Includes funds for Arroyo Pasajero flood control project) (Also see CWC 135, Corps)		800,000	800,000	13
670	**Miscellaneous Project Programs (Mid-Pacific Region)**				
674	Fish Screening Criteria Study		--	500,000	14
687	Unscreened Diversions		6,000,000	6,000,000	14
688	Reclamation District 108 (Unscreened Diversions)		0	650,000	14
689	Reclamation District 1004 (Unscreened Diversions)		0	215,000	14
Loan Projects (Westwide)					
800	Small Reclamation Projects Administration		425,000	600,000	15
Loan Projects (Lower Colorado Region)					
1203	San Sevaine Creek Water Project (San Bernardino, Riverside)		0	250,000	15
PL 102-575 (Mid Pacific Region)					
901	San Francisco Area Water Reclamation Study		700,000	1,500,000	16
903	San Jose Area Water Reclamation and Reuse Program		1,750,000	9,000,000	16
PL 102-575 (Lower Colorado Region)					
1302	Orange County Regional Water Reclamation Project - Phase I		--	600,000	16
1304	San Diego Area Reclamation		2,340,000	9,000,000	16
1306	Brackish Water Reclamation Demonstration Facility (Ventura)		--	500,000	16

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[4] CWC continues to vigorously support completion of the Station Development Plan, but recommends no additional funding in FY96 in order that funds can be used for the Shasta Temperature Control Device.

U.S. ARMY CORPS OF ENGINEERS

CWC No.	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
101 New	Tehama-Hamilton City Flood Control Study (Tehama, Glenn)						—[1]

Glenn County officials reported that on January 10, 1995 for the third time in the past 12 years, residents of Hamilton City had to be evacuated because of the threat of flooding in the town as a result of impending levee failure.

The residents of Hamilton City and nearby farm operators feel that they can no longer rely on this levee in its current conditional and have asked the Glenn County Public Works Department to act as a public sponsor to begin the process of bringing the levee up to federal standards for maintenance. Both the Hamilton City Community Service District and representatives of farms in the area have indicated their willingness to participate in the construction and O&M of this levee through the formation of a local assessment district or levee maintenance district.

Flooding of the town of Tehama occurred in 1986 and some homes were raised above the flood level; however, in January of 1995, other homes were flooded. The city has requested the Corps to restudy this area for flood control improvements.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
112	Sacramento River and Tributaries -	Federal	2,000,000	0	0	800,000	0	800,000
New	Ecosystem Management Study	NonFed	0[5]					
		Total	2,000,000					

The Sacramento River Flood Control Project, authorized by Congress in 1917, is located on the Sacramento River and tributaries in northern California. The project provides flood protection to most of the metropolitan areas located in the greater Sacramento Valley, including the State capital in Sacramento. Over the years society's values, uses, restrictions, and demands on the flood control project and rivers encompassed by the Project have changed significantly. Today, society is demanding not only protection from flooding, but also recreational opportunities, enhancement of the environment and ecosystem, and economic growth of local communities. To meet these and other needs along the river, individual and separate activities are using the same base assumption, which is to develop their specific project or program around the flood control project, as it presently exists. This base assumption with a fact that some activities are competing has placed a number of activities along the river in conflict.

This creates a need to develop and implement a comprehensive, multi-objective floodway corridor management plan that considers flood control project modification or reconfiguration and would assist in coordinating all the activities related to flood control. This plan would help assure continued viability of the Sacramento River Flood Control Project and the river system for future generations. This plan would be studied and developed while existing public safety activities continue. Once the plan is ready for implementation, a transition process will occur to implement the comprehensive plan and terminate or merge existing program activities.

CWC No.	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
120 New	Stockton Metropolitan Area Study (Includes Farmington) (San Joaquin)						800,000

The Federal Emergency Management Agency has recently completed a study of the Stockton Metropolitan area. The study concludes that much of the Stockton Metropolitan area does not have protection from a 100-year flood. The affected area includes all of downtown Stockton and the most heavily populated areas of the community. FEMA has released preliminary Flood Insurance Rate Maps that show flooding of the community from Mormon Slough, the Stockton Diverting Canal, the Calavaras River, Lower Mosher Slough, the Paddy Creek System, Bear Creek, and the Potter Creek Tributaries. The FEMA study concluded that levees along these channels do not have adequate freeboard.

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[1] CWC supports Corps' recommendation this project is to be funded under "Continuing Authorities" Program (Section 205).

[5] Reconnaissance Study is 100 percent federally funded. Non-Federal cost sharing will begin at Feasibility Study Level.

San Joaquin County Flood Control and Conservation District and the City of Stockton have entered into a joint agreement to address the flooding issue. The City and County Public Works staff has begun identifying improvements necessary to provide the community with 100-year flood protection. A very rough estimate of a plan to provide this protection is expected to cost approximately $22 million. Most of the identified work involves increasing levee and bridge crossing heights to correct freeboard deficiencies.

Because of the magnitude of the potential loss of life and damage to property within the community, a new study called the "Stockton Metropolitan Area Study" is proposed. The proposed study would be a General Investigation Survey (Reconnaissance Report) and would be 100 percent federally funded. The report would take approximately 18 months to complete. Subsequent reports, and the project construction phases would be cost shared with a non-Federal sponsor.

The scope of this study would include Farmington Dam, which was previously requested as a separate study. Stockton East Water District is seeking appropriations for the Corps to perform storage tests and a study to determine feasibility for enlargement of the dam for conservation purposes. A June 1981 Corps report recommended test storage within the present flood control reservoir, and discussed enlargement from 52,000 AF to 160,000 AF.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
125 New	Reservoir Flood Release Coordination - San Joaquin River						75,000

The U.S. Army Corps of Engineers has used some discretion managing releases during major floods. However, there is no established commitment or methodology for analyzing and determining the feasibility of such coordination under the wide range of possible circumstances. Furthermore, such coordination could reduce seepage damage, flooding of recreational facilities and tailer parks, and other impacts of lesser floods. Feasibility of coordinated operation is also greater during these lesser floods.

The project is designed to develop criteria and methodology for coordinating releases among dams on the San Joaquin River system so that releases to evacuate or manage the use of dedicated flood space are optimized and balanced in achieving several objectives:

- Maintain design level of flood protection in each tributary.
- During high-flow situations, manage arrival time and magnitude of tributary flows into the mainstem to minimize downstream peak flows and flood damage where tributary flows merge along the mainstem.
- In preparation for high-flow situations, releases are often made to evacuate or maintain designated flood space at times when the need or potential for such a release can be recognized at least a few days in advance. When this is the case, agencies with salt management problems should be given advance notice so that salts stored in shallow groundwater or ponds can be discharged to the river which adequate dilution water is available. Drainage discharges should not be artificially augmented when floodflows are above the warning stage. The ability to take advantage of these opportunities should be enhanced by improved mechanisms for storage, extraction and rapid discharge of drainage water to the river.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
134	San Joaquin River Basin, Firebaugh & Mendota (Fresno)	Federal	875,000	98,000	252,000	232,000	0	150,000
		NonFed	525,000					
		Total	1,400,000					

The study area is located in northwestern Fresno County, California approximately 35 miles west of the City of Fresno. The City of Firebaugh is located on the west bank of the San Joaquin River while the City of Mendota is approximately ten miles southeast of Firebaugh. Current populations of Firebaugh and Mendota are 5,400 and 7,700, respectively. Flooding in the study area is primarily due to overflows from the Panoche Creek, Silver Creek and from inadequate flow capacity of the San Joaquin River due to sediment build-up over time. The California State Reclamation Board, the local sponsor, expressed support for the study in September 1994 The Feasibility Cost Sharing Agreement is scheduled to be signed in September 1995.

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
135	San Joaquin River Basin.	Federal	3,195,000	1,170,000	850,000	977,000	700,000	700,000
	Arroyo Pasajero (Fresno)	NonFed	2,330,000					
	(Also see CWC 660)	Total	5,525,000					

Flooding, sediment deposition, and asbestos contamination problems affecting cross drainage facilities of the San Luis Canal at Arroyo Pasajero need to be resolved. The Arroyo Pasajero, located in Fresno County, is a dry wash which drains the four streams of the Coalinga stream group. Flood waters from the stream group are ponded behind the San Luis Canal because the original design provided for minimal cross drainage with ponding and subsequent release of flood water into the San Luis Canal.

Larger volumes of flood waters and sediments than originally anticipated have proven the ponding area adjacent to the canal to be inadequate. Large concentrations of asbestos have been discovered within the flood waters and sediments of the ponding area originating from naturally erosive deposits in the upper watershed and from abandoned asbestos mines which are currently listed on the Environmental Protection Agency's Superfund List.

The Corps of Engineers has completed a reconnaissance level study and has determined that Federal participation for flood control is feasible. The Department and the Corps commenced the joint feasibility study in January 1994.

DWR Is involved in an ongoing program to protect the canal and surrounding residents from floodflows at the Arroyo Pasajero. In the near term, this program involves implementing the interim solution described in DWRs Draft EIR which incorporates the protection of nearby communities from flood damages and maximizes Aqueduct protection while utilizing the existing canal facilities. Secondly, DWR and the Corps are beginning a four-year basinwide Feasibility Study in 1994 which will identify a long-term flood protection plan for the Arroyo. The Corps, DWR and USBR will all participate in the cost of the study and the selected solution to Arroyo Pasajero flooding problems.

On March 10, 1995 a section of Interstate 5 collapsed when floodflows raced down the Arroyo. Seven people lost their lives and there was significant property damage.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
139	San Joaquin River Basin.	Federal	1,444,000	819,000	25,000	–	0	200,000
	Tule River Basin	NonFed	1,129,000					
		Total	2,573,000					

The Tule River Association reports that although further work on the Success Reservoir Enlargement Feasibility Study was placed on hold in 1992 for updating the seismic studies of Success Dam, after a meeting with General Williams, Chief USACE and members of Congress on August 16, 1994 and a subsequent meeting with District and SPD Corps Staff on October 17, 1994, copy of Corps communications attached as Exhibit "B", the Corps agreed to proceed in calendar year 1995 and FY 1996 under an amendment of the 1988 FCSA with updating and completion of the various tasks of the feasibility study.

A meeting between the local sponsor and the District Corps staff regarding an amendment of the FCSA was conducted on January 12 and 13, 1995. During that meeting the Corps District staff agreed to obtain clarification of the need for the extensive rewrite of the 1992 Interim Report and particularly the need for risk-based analysis, reformulation of alternative plans of enlargement for selection of a NED plan, additional detailed economic studies, MCACES cost estimate and determination of the environmental impacts and mitigation of only the area of reservoir enlargement instead of the entire Tule River downstream service area.

It is anticipated that the amended FCSA cost will be reduced to approximately $500,000 and although the Corps has agreed to proceed in FY 95 using other funds, the 1996 budget needs to provide $200,000 for the continuation of the Success Reservoir Enlargement Feasibility Study.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
171	Lower Mission Creek (Santa Barbara)	Federal	2,799,000	1,549,000	419,000	–	81,000	300,000
		NonFed	750,000					
		Total	3,549,000					

Lower Mission Creek is located in the City of Santa Barbara. The authorized plan consists of approximately 1.2 miles of rectangular concrete channel improvements along the lower most reach of the creek. The project is designed to prevent 100-year flood damages. The $300,000 is needed to continue the study to determine the most efficient and effective alternative.

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
186	Mission Zanja Creek (San Bernardino)	Federal	1,370,000	500,000	0	300,000	0	300,000
		NonFed	870,000					
		Total	2,240,000					

The study area is located in San Bernardino County approximately 55 miles east of Los Angeles. The 10-mile Zanja Creek drains a total of 26 square miles from the San Bernardino Mountains to the confluence of the Santa Ana River. Flooding in 1965, 1976 and 1980 caused over $4 million in damages. The 100-year flood potential to downtown Redlands is estimated at about $8 million.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
187	Norco Bluffs, Santa Ana River (Riverside)	Federal	1,430,000	855,000	200,000	400,000	0	375,000
		NonFed	925,000					
		Total	2,355,000					

The study area is located approximately 40 miles southeast of Los Angeles in the City of Norco along the south bank of the Santa Ana River. Flood induced migration of the main channel of the Santa Ana River to the base of the bluffs has resulted in undercutting and subsequent bank destabilization which threatens residential development along the edge of the bluffs. The County of Riverside requested the Corps to proceed directly to a feasibility study, which is being cost-shared on a 50:50 basis with the County and the Corps. In FY94, the Congress appropriated $150,000 to start the feasibility report. There is an FY95 appropriation of $200,000.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
201	American River Watershed	Federal	19,200,000	8,962,000	2,099,000	2,000,000	3,000,000	3,000,000
		NonFed	0[5]					
		Total	19,200,000					

SAFCA along with the State Reclamation Board are acting as joint non-Federal sponsors for the American River Watershed Investigation. The State and SAFCA cost-shared in the Feasibility Report produced in 1992 by the Corps which recommended the 200-year dry Auburn Dam Project, which was not approved by Congress. Since 1992, the Federal government has fully funded the Corps efforts for the continuing studies on the ARWI, as if the project was in design. SAFCA has provided in-kind services predominantly through outside consultants to supplement the Corps efforts. Our goal is to select a locally preferred plan and seek Congressional authorization in 1996.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
238	Kaweah River (Tulare) (Also see CWC 138)	Federal	3,900,000	0	0	500,000	0	500,000
		NonFed	0[5]					
		Total	3,900,000					

The project area is located within the Tulare Lake Basin, in the southeastern portion of the San Joaquin Valley, between the cities of Fresno and Bakersfield. The cost-shared feasibility study is scheduled for completion in February 1996. The potential project, estimated to cost $40.1 million with an estimated Federal cost of $29.5 million and an estimated non-Federal cost of $10.6 million (October 1994 price level), includes enlarging Lake Kaweah by 43,000 acre feet. The average annual benefits amount to $3,910,000 ($3,346,000 for flood control, $321,000 for irrigation water supply and $243,000 for employment benefits). The benefit-cost ratio is 1.3 to 1 at 8 percent based upon the latest economic analysis dated September 1992. The project is not yet authorized for construction. The Kaweah Delta Water Conservation District, the local sponsor, is aware of project cost-sharing requirements.

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[5] Reconnaissance Study is 100 percent federally funded. Non-Federal cost sharing will begin at Feasibility Study Level

WC o	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
301	Upper Sacramento River -	Federal	3,000,000		500,000	500,000	0	500,000
	Golden State Island	NonFed	1,000,000					
	(1135)	Total	4,000,000					

On May 12, 1992 The Reclamation Board of the State of California requested that the U.S. Army Corps of Engineers conduct a reconnaissance study of the upper Sacramento River system, including major tributaries, from Verona to Red Bluff. This study, funded in 1993 and now in draft form, is recommending habitat restoration at five river sites. Based upon the contents of the site-specific, single-purpose reconnaissance study, the Reclamation Board recommends consideration of an environmental restoration project at the Golden State Island site in accordance with Sections 1135 of the Water Resources Development Act of 1986, which provides the Corps the authority to do restoration projects. This would allow the Corps/State to demonstrate possible future actions on the Sacramento River Flood Control Project that would provide broad scale benefits when properly integrated with flood control measures.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
302	Sacramento River Restoration at	Federal	10,650,000	2,193,000	400,000	400,000	0	300,000
	Glenn-Colusa Irrigation District	NonFed	3,550,000					
	(Glenn) (Also see CWC 622)	Total	14,200,000					

The Reclamation Board, Department of Fish and Game and the Glenn-Colusa Irrigation District are proceeding with cost-shared environmental documentation for the restoration of the Sacramento River hydraulic gradient and restoration or replacement of the fish screens. Congress provided funds and directed the Corps to restore a portion of the river to its original configuration so that water supply and fish protection facilities can continue to operate.

An FY95 appropriation of $400,000 has allowed the Corps to participate in physical hydraulic modeling, to continue post-design activities following completion of the design report, to accomplish necessary environmental documentation of the final design, and to prepare plans and specifications for construction.

It is our understanding that the Department of Fish and Game will become the State lead agency as soon as the Draft Feasibility Study EIR/EIS is complete in the spring of 1995.

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
305	Mid-Valley Area	Federal	17,000,000	1,352,000	870,000	–	0	500,000
New	Levee Reconstruction	NonFed	5,600,000					
		Total	22,600,000					

The project is located within the boundaries of the Sacramento River Flood Control System in Sutter and Yolo Counties in north-central California. The area includes the Sacramento River, Knights Landing Ridge Cut, and Sutter Bypass and the communities of Knights Landing and Robbins. An evaluation of about 240 miles of the Sacramento River Flood Control Project levees in the Mid-Valley area identified about 20 miles of levees that are structurally deficient. The project includes reconstructing about 10 miles of these levees by installing landside berms with toe drains, relocation of ditches, embankment modifications, slurry cut-off walls, the restoration of levee height and developing land for fish and wildlife mitigation. The California State Reclamation Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction currently scheduled for January 1996.

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
311	San Joaquin River	Federal	4,500,000		0	500,000	–	500,000
New	China Island Habitat Restoration	NonFed	1,500,000					
		Total	6,000,000					

This pilot project, to be carried out on California Department of Fish and Game lands along the San Joaquin River, would combine construction of facilities to restore wetland refuge habitat with features allowing the diversion of floodwater to the refuge area during peak flow periods. The Corps would design and construct environmental restoration and flood control features for approximately 4,730 acres of land currently owned and planned for refuge development by the California Department of Fish and Game, referred to as the "China Island Unit."

U.S. BUREAU OF RECLAMATION

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
611	Temperature Control Device - Shasta Dam	Federal	72,963,000	6,226,466	18,000,000	5,000,000	549,000	549,000
		Restoration	7,037,000	1,312,777	7,037,000	7,037,000	11,281,000	11,281,000
		NonFed	0					
		Total	80,000,000	7,539,243			11,830,000	11,830,000

A structural water temperature control device will be installed at Shasta Dam to provide better control of river temperatures to assist in recovery actions for anadromous salmonids in the Upper Sacramento River. A construction contract was awarded in November 1994. Construction activities will continue in FY 1995 with an anticipated completion date of October 1996. Summarized below is information for the Shasta Temperature Control Device:

Design and Construction	
Call for Bids	March 1994
Open Bids/Negotiate Contract	May-September 1994
Award Contract	October 1994
Complete Construction	October 1996

Projected Fiscal Needs	
Pre FY 1994	$ 6,007,300
FY 1994	1,500,000
FY 1995	30,625,000
FY 1996	31,647,700
FY 1997	10,220,000
Total Estimated	$ 80,000,000

CVPIA specifies cost sharing is 37.5% CVP reimbursable, 37.5% Federal nonreimbursable and 25% State.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
612	Coleman National Fish Hatchery Modification	Federal	29,358,000	0	0		0	Support[4]
		Restoration	5,335,000	1,560,803	2,735,000	2,735,000		
		Total	34,693,000					

Coleman National Fish Hatchery supplements natural production of anadromous fish in the Upper Sacramento River basin. The Fish and Wildlife Service is currently implementing a plan to rehabilitate and expand the facility so that survival, smolt quality and release size are significantly improved. An additional objective is to provide full treatment of waters entering the hatchery system thus removing or significantly lowering potential for transmission of disease organisms to hatchery fish. This is expected to permit the removal of barriers to migratory salmon in Battle Creek and provide access to upstream spawning gravels.

Construction will continue to be accomplished in phases over several years with actual construction taking place in the spring and summer of each year in order to minimize impacts to the fall and winter spawning and rearing periods. In FY94 rehabilitation of 50-year old rearing ponds, a new primary water line for the ponds, and Phase I water treatment facilities were completed. In FY95 the Phase I water treatment facilities (ozonization) to provide up to 10,000 gallons per minute of treated water will be completed.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
621	Colusa Basin Drain			75,000	–	–	750,000

The 650,000 acre Colusa Basin Drainage District serves a large watershed, comprised of 21 smaller watersheds. It not only is a rich agricultural area, but a rich wildlife area as well, including three national wildlife refuges. A cooperative, integrated approach to watershed management will allow water-related projects to meet multiple needs within the watershed. The District has just completed ranking the 21 watersheds within the Basin, to define the areas where it is most feasible to achieve the District's goals to:

- protect agricultural production
- capture surface or stormwater for conservation, conjunctive use and increased water supplies
- provide flood and drainage water protection for urban and agricultural interests
- assist in groundwater recharge efforts to alleviate overdraft and land subsidence
- improve and enhance opportunities for wetland and riparian habitats.

The District has initially selected three watersheds where projects will be developed to serve as a demonstration for integrated resources management. The District would use an FY 96 appropriation to assist it with costs associated with pre-project development.

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[4] CWC continues to vigorously support completion of the Station Development Plan, but recommends no additional funding in FY96 in order that funds can be used for the Shasta Temperature Control Device.

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
622	Hamilton City Pumping Plant	Federal	37,315,000	1,237,270	1,425,000	1,500,000	0	3,000,000
	Fish Facility (Glenn)	Restoration		0				
	(Also see CWC 302, Corps)	Non Fed		0				
		Total	37,315,000	1,237,270				

The Reclamation Board, Department of Fish and Game and the Glenn-Colusa Irrigation District are proceeding with cost-shared environmental documentation for the restoration of the Sacramento River hydraulic gradient and restoration or replacement of the fish screens. The Congress has provided funds and directed the Corps of Engineers to restore a portion of the river to its original configuration so that water supply and fish protection facilities can continue to operate.

An FY95 appropriation of $400,000 has allowed the Corps to participate in physical hydraulic modeling, to continue post-design activities following completion of the design report, to accomplish necessary environmental documentation of the final design, and to prepare plans and specifications for construction.

Funding in FY96 will allow USBR to continue design of this important facility.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
623	Winter-Run Chinook Salmon	USBR	700,000	1,164	400,000	250,000	0	1,100,000
	Captive Broodstock Program	USFWS				250,000		
		NOAA				171,556		
		Total NonFed				1,610,000		
		Total	12,616,257		400,000	2,281,556		

The Sacramento River winter-run Chinook salmon has been listed as threatened under the Federal Endangered Species Act by the National Marine Fisheries Service and as endangered under California law. This listing has already impacted several important sectors of California's economy. Actions already taken to protect winter-run salmon and their habitat include curtailment of salmon fishing in coastal California waters, restrictions on diversions from the Sacramento-San Joaquin Delta for the State Water Project and the Federal Central Valley Project, reduction of water diversion at the Glenn-Colusa Irrigation District, halting the release of striped bass into the Sacramento Delta, bypassing the powerhouse at Shasta Dam to provide cool water in the upper Sacramento River and holding up the permit process for the dredging of the ports of San Francisco and Oakland.

The goal of the captive broodstock program is to rear winter-run Chinook salmon under controlled conditions until they become reproductively mature adults. Mature adults would then be used as hatchery broodstock for continued propagation of the race.

A genetic management element is included in the project. This is necessary to prevent inbreeding of the fish. A blue ribbon subcommittee of recognized scientists has been appointed by the captive broodstock committee to oversee the genetic program.

In FY 1994, Congresswoman Nancy Pelosi took the lead to secure appropriations for USF&WS and National Marine Fisheries Service and Congressman Vic Fazio requested an add-on to USBR's Budget. H.R. 2457 (Pelosi) passed both houses of Congress and was recently signed by the President. The Act authorizes $1 million for appropriations for each of fiscal years, 1994 through 1998, subject to at least 20 percent of the amounts necessary to conduct the Program being provided by non-Federal sources.

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
624	RBDD Demonstration Research Facility Evaluation	Federal	5,830,000	383,459	400,000		0	1,300,000
		Restoration	920,000	0	920,000	920,000		
		NonFed		0				
		Total	6,750,000	383,459	1,320,000			
625	RBDD Fish Passage Program	Federal	5,163,00	1,299,988	495,000		0	1,000,000
		Restoration	500,00	0	500,000			
		NonFed		0				
		Total	5,663,000	1,299,988	995,000			

Red Bluff Diversion Dam has been identified as one cause of a continued decline of salmon and steelhead in the Sacramento River to levels roughly 50 percent of the 1953-60 average. The continued decline of the winter-run chinook salmon has prompted its listing as an endangered species.

The Action Program began in 1983 and is a coordinated effort between the Bureau of Reclamation and State and Federal resource agencies.

Reclamation has completed an Appraisal Study. The Study recommends further consideration be given to the following alternatives:

- A pumping plant capable of delivering the full yearly demands to the Tehama-Colusa and Corning Canals.
- A pumping plant capable of supplying the demands of the Tehama-Colusa and Corning Canals for 10 months.
- A combination of gates of the dam open during the winter months and a new left bank and middle fish ladder and a modified right bank ladder.
- A combination of gates of the dam open during the winter months and a new left bank and middle fish ladder, and a modified right bank ladder.

The Study considered the following: (1) Benefits to the fishery as a result of improved fish passage facilities and (2) Economic viability of the various alternatives.

Efforts to determine social impacts, public acceptability of alternatives, and the financial analyses are ongoing.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
660	**San Luis Unit - CVP** (Includes funds for Arroyo Pasajero flood control project) (Also see CWC 135 - Corps)	Fed	1,524,956,000	563,833,261	647,000	676,000	800,000	800,000
		NonFed	232,772,114	209,334,250			275,000	
		Total	1,757,728,114	773,167,511			1,075,000	

Flooding, sediment deposition, and asbestos contamination problems affecting cross drainage facilities of the San Luis Canal at Arroyo Pasajero need to be resolved. The Arroyo Pasajero, located in Fresno County, is a dry wash which drains the four streams of the Coalinga stream group. Flood waters from the stream group are ponded behind the San Luis Canal because the original design provided for minimal cross drainage with ponding and subsequent release of flood water into the San Luis Canal. Larger volumes of flood waters and sediments than originally anticipated have proven the ponding area adjacent to the canal to be inadequate. Large concentrations of asbestos have been discovered within the flood waters and sediments of the ponding area originating from naturally erosive deposits in the upper watershed and from abandoned asbestos mines which are currently listed on the Environmental Protection Agency's Superfund List.

The Corps of Engineers has completed a reconnaissance level study and has determined that Federal participation for flood control is feasible. The Department and the Corps commenced the joint feasibility study in January 1994.

DWR is involved in an ongoing program to protect the canal and surrounding residents from floodflows at the Arroyo Pasajero. In the near term, this program involves implementing the interim solution described in DWRs Draft EIR which incorporates the protection of nearby communities from flood damages and maximizes Aqueduct protection while utilizing the existing canal facilities. Secondly, DWR and the Corps began a four-year basinwide Feasibility Study in 1994 which will identify a long-term flood protection plan for the Arroyo. The Corps, DWR and USBR will all participate in the cost of the study and the selected solution to Arroyo Pasajero flooding problems.

On March 10, 1995 a section of Interstate 5 collapsed when floodflows raced down the Arroyo. Seven people lost their lives and there were significant property damages.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
674 New	Fish Screening Criteria Study -						500,000

Section 3406 (b)(21) of the Central Valley Improvement Act directs USBR and USFWS to assist the State of California in developing a fish screening program. It has been determined that fish screening criteria studies conducted in the 1970s and 1980s for tidally influenced areas do not adequately address the problems in riverine conditions. This study proposes to focus on factors influencing the swimming ability of juvenile fish, including the type and size of the species, lighting and temperature conditions, type, location and size of diversion and they hydraulic conditions of the water body. The information gathered would be useful for many water users to effectively screen more of their diversions.

Federal and State resources agencies involved in fish screening projects and issues, along with several water user representatives, would join together to coordinate the study.

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
687	Unscreened Diversions	Federal	27,119,000	0	4,000,000	4,000,000	6,000,000	6,000,000
		Restoration	616,951	616,951				
		NonFed		0				
		Total	28,119,000	616,951				
688	Reclamation District 108 (Unscreened Diversions)	Federal	450,000	0	450,000		0	650,000
		NonFed		0			0	
		Total	450,000	0				
689	Reclamation District 1004 (Unscreened Diversions)	Federal	215,000	0	215,000		0	215,000
		NonFed		0			0	
		Total	215,000	0				

Reclamation District 108. The installation and evaluation of alternative fish guidance systems is being conducted for Reclamation District 108 at Wilkins Slough, and is a demonstration project. The assessment will be used in consultations being conducted under Section 7 of the Endangered Species Act. This biological assessment will describe the historic and anticipated future operations of the Wilkins Slough diversion, the experimental fish guidance systems to be tested, and the monitoring program designed to evaluate the effectiveness of the fish guidance systems. The guidance systems to be tested area graded electrical barrier and an underwater sound system. The proposed actions are designed to be carried out when winter-run Chinook are not present, to determine if the sound and electrical barriers can be effective at guiding juvenile Chinook away from the Wilkins Slough diversion. This assessment will also describe the biology of winter-run Chinook salmon and the effects the proposed project may have on them.

Reclamation District 1004. The Biological Assessment has been prepared to describe the possible effects of the installation and testing of a fish guidance system at Reclamation District 1004's Princeton pumping station on winter-run Chinook salmon in the Sacramento River. RD 1004 is along the migratory pathway for winter-run Chinook salmon, which spawn in the Sacramento River, principally above Red Bluff, upstream of Princeton. The installation and evaluation of a fish guidance system is being conducted for RD 1004 at Princeton, and is a demonstration project being conducted under Section 7 of the ESA. This biological assessment will describe the historic and anticipated future operations of the Princeton diversion, the experimental fish guidance system to be tested, and the monitoring program designed to evaluate the effectiveness of the fish guidance system. The guidance system to be tested is an underwater sound system

USBR SMALL RECLAMATION PROJECT LOAN PROGRAM

WC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
Loan Projects (Westwide)								
800	Small Reclamation Projects Admin	Federal	Continuing		600,000	600,000	425,000	600,000

The Commission continues to support an appropriation for this line item which would be adequate to carry out the administration of the USBR Small Reclamation Projects Loan Program. Toward this effort, the Commission voted to recommend an FY96 appropriation of $600,000 for the Westwide administration of this program.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
Loan Projects (Lower Colorado Region)								
1203	San Sevaine Creek Water Project (San Bernardino, Riverside)	Federal NonFed Total	51,976,594 30,871,816 82,848,410	0	0	500,000	0	250,000

The proposed project would provide environmental enhancements, water conservation and flood control facilities in the western portion of the San Bernardino Valley. A 98-acre area is being set aside to protect a sensitive plant community and wetlands and provide wildlife enhancement. A multi-purpose trails system is also proposed along most of the project. In addition, several water conservation basins will percolate an estimated 25,000 acre feet of storm water runoff per year into the Chino Groundwater Basin benefitting agricultural, municipal and industrial water users in the Valley. Presently, the Basin safe yield is in an over-draft condition, which is replenished by importing water from Northern California. This project would help reduce the need for purchasing imported water.

WATER RECYCLING PROGRAM

Title XVI of the Reclamation Projects Authorization and Adjustment Act of 1992, Public Law 102-575, provides authority for the Secretary of Interior through the Bureau of Reclamation to undertake a program to investigate and identify opportunities for reclamation and reuse of wastewater. Section 1611 of this title, which authorizes Reclamation to conduct a feasibility study for the potential of demonstration and permanent facilities to reclaim water.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
PL 102-575 (Mid Pacific Region)								
901	San Francisco Area Water	Federal	3,690,000		790,000	790,000	700,000	1,500,000
	Reclamation Study	NonFed	3,690,000					
		Total	7,380,000					
903	San Jose Area Water Reclamation	Federal	32,500,000	0	1,715,000	–	1,750,000	9,000,000
	and Reuse Program	NonFed	97,500,000					
		Total	130,000,000					
PL 102-575 (Lower Colorado Region)								
1302	Orange County Regional Water	Federal	42,600,000		0	250,000	–	600,000
	Reclamation Project - Phase 1	NonFed	127,800,000					
		Total	170,400,000					
1304	San Diego Area Reclamation (Includes	Federal	172,590,000	0	2,500,000	Support	2,340,000	9,000,000
	San Diego, Escondido, Poway,	NonFed	517,770,000					
	Padre Dam Muni WD, Otay Water	Total	690,360,000					
	Dist. and San Diego County Water Authority)							
1306 New	Brackish Water Reclamation Demonstration Facility (Ventura)							500,000

CWC 901 - San Francisco Area Water Reclamation Study. The San Francisco Area Water Reclamation feasibility study explores the concept of exporting excess recycled water from the Bay Area - after maximum local usage - to regions that could beneficially reuse the water for such purposes as agricultural irrigation and salinity control. More than 15 Bay Area water and wastewater agencies are participating in this study, along with State and Federal agency representatives. Implementation of this project could potentially free up to 400,000 acre-feet of potable water for other uses, such as in-stream flows for fish and wildlife, or drought protection for municipalities.

It is anticipated that the feasibility study, which is an essential step in verifying the potential for significant environmental, economic, and social benefits from the project, will include (1) near and long-term water demand and supplies in the study area; (2) identification of all potential uses for reclaimed water; measures and technologies available for water reclamation, distribution, and reuse; (3) public health and environmental quality issues associated with use of reclaimed water; and (4) whether development of the water reclamation and reuse measures under study would reduce, postpone, or eliminate development of new or expanded water supplies, or reduce or eliminate the use of existing diversions from natural watercourses or withdrawals from aquifers.

CWC 903 - San Jose Area Water Reclamation and Reuse Program. The San Jose Area Water Reclamation and Reuse Program is a regional project sponsored by the Cities of San Jose and Santa Clar, neighboring municipalities and sanitation agencies, and the Santa Clara Valley Water District. The project will enable the San Jose/Santa Clara Water pollution Control Plan to meet federally mandated water quality standards, and will reduce pressure on area surface and groundwater supplies by diverting up to 36,000 acre-feet per year of treated effluent from San Francisco Bay and recycling it for irrigation and industry in the drought-prone Santa Clara Valley.

Phase 1 of the project involves construction of 100 miles of pipe in a 30-square mile section of Silicon Valley. This area, which marks the intersection of the cities of San Jose, Santa Clara and Milpitas, has over 3,000 irrigable acres, including high-tech business parks, schools and a golf course. Phase 1 will deliver 9,000 acre-feet per year of recycled water at a cost of $130 million, and is scheduled to begin operation in November 1997.

CWC 1302 Orange County Regional Water Reclamation Project - Phase I. The Orange County Regional Water Reclamation Project is being developed in three phases. Phase I is planned to produce 50,000 acre-feet per year of reclaimed water, primarily for groundwater replenishment, by the year 2000. Phases II and III will produce an additional 25,000 af per year in the years 2010 and 2020, thereby eventually producing a total of 100,000 af per year. The project is being planned to utilize a combination of microfiltration and reverse osmosis. One hundred percent of the secondary effluent will be treated by microfiltration membrane units. A portion of the microfiltered effluent will then be treated by reverse osmosis membrane units. The reverse osmosis product water will be blended with the remaining microfiltered water and pumped about 15 miles via a pipeline to the Orange County Water District's existing groundwater recharge basins for groundwater spreading. The activities associated with Phase I of the project which are expected to be conducted during Federal fiscal year 1996 include finalizing the environmental documentation, continuing the Santa Ana River Water Quality and Health Study and beginning preliminary design.

CWC 1304 - San Diego Area Reclamation. The local water agencies, led by the San Diego County Water Authority, have been developing a comprehensive water reclamation and reuse plan for the entire county. Among the components included in the projects are:

> **Escondido Water Reclamation Project.** The City of Escondido is expanding their existing secondary treatment plant to tertiary, and constructing pumping and distribution facilities to annually deliver approximately 3,200 acre-feet of reclaimed water to customers for irrigation use. Reclamation has executed a grant for $400,000 for preconstruction activities, which is being funded from General Investigations accounts because it includes research concerning the tolerance of avocados to the wastewater. The results of this study could have a major impact on the potential market for reclaimed water. The main project is estimated to cost about $69 million and should be completed by 1998.
>
> **San Diego Water Reclamation Project.** The City of San Diego has begun construction of its North City Treatment Plant, which includes both secondary and tertiary treatment components. Approximately 14,000 acre-feet of tertiary effluent will annually be distributed via pumping plans and pipelines for use as industrial process water and for landscape irrigation. The tertiary portion of the treatment plant, pumps and pipelines are estimate to cost about $200 million and should be completed by 1997.
>
> **San Diego Water Repurification Project.** The City of San Diego and the San Diego County Water Authority are jointly studying the feasibility of using state-of-the-art technology to purify reclaimed water to a level equivalent to existing imported water supplies. If approved by appropriate authorities, a water repurification facility would annually treat approximately 21,000 acre-feet tertiary effluent from the North City Treatment Plant, which would then be pumped over 20 miles to the San Vincente Reservoir for blending with imported raw water. This project is still in the feasibility stage, so an accurate estimate cannot be prepared.

CWC 1306 - Brackish Water Reclamation Demonstration Facility. To provide high quality water, the Port Hueneme Water Agency is implementing a Water Quality Improvement Program. This program involves demineralization of the imported groundwater which will be used conjunctivaly with imported State water. Local groundwater pumping along the coast would be eliminated and total groundwater extractions would be reduced.

The cornerstone of the program is a brackish water reclamation demonstration facility to provide 3.9 million gallons per day of water treated to the quality of imported State water. It is proposed that reverse osmosis, nanofiltration and electrodialysis technologies be demonstrated side by side for long-term operating and economic data . The facility could become a location to provide operator training and to make it more accessible for other communities to implement brackish water desalination.

STATE OF CALIFORNIA - THE RESOURCES AGENCY
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Final Recommendations for Fiscal Year 1996 Federal Appropriations for California Water, Fishery and Flood Control Projects

March 3, 1995

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
	U.S. ARMY CORPS OF ENGINEERS							
	General Investigations - Surveys							
101	Tehama-Hamilton City Flood Control Study							–[1]
New	(Tehama, Glenn)							
102	Northern California Streams,	Federal	1,500,000	210,000	410,000	350,000	300,000	300,000
	Sacramento River Fish Migration	NonFed	900,000					
	(Solano, Yolo)	Total	2,400,000					
104	Northern California Streams,	Federal	1,250,000	160,000	350,000	300,000	200,000	200,000
	Winters and Vicinity (Yolo)	NonFed	750,000					
		Total	2,000,000					
105	Northern California Streams -	Federal	1,250,000	0	300,000	250,000	200,000	200,000
	Cache Creek Environmental	NonFed	750,000					
	Restoration	Total	2,000,000					
106	Northern California Streams -							–[1]
New	Magpie Creek (Sacramento)							
107	Northern California Streams,	Federal	1,570,000	1,216,000	254,000	200,000	100,000	100,000
	Yuba River Basin	NonFed	1,050,000					
		Total	2,620,000					
110	Colusa Basin Drain (Also see CWC 621)					–	–	0
112	Sacramento River and Tributaries -	Federal	2,000,000	0	0	800,000	0	800,000
New	Ecosystem Management Study	NonFed	0[2]					
		Total	2,000,000					
120	Stockton Metropolitan Area Study							800,000[3]
New	(San Joaquin)							
121	Sacramento-San Joaquin Delta	Federal	5,940,000	3,894,000	261,000	700,000	800,000	800,000
	Investigation	NonFed	2,975,000					
		Total	8,915,000					
122	Sacramento-San Joaquin Delta	Federal	1,250,000	–	210,000	–	290,000	290,000
	Little Holland Tract	NonFed	750,000					
		Total	2,000,000					
123	Sacramento-San Joaquin Delta	Federal	875,000	188,000	168,000	200,000	100,000	100,000
	Prospect Island (Solano)	NonFed	525,000					
		Total	1,400,000					
124	Sacramento-San Joaquin Delta	Federal	2,000,000	165,000	635,000	550,000	0	300,000
	Western Delta Islands	NonFed	1,200,000					
	(Contra Costa, Sacramento)	Total	3,200,000					
125	Reservoir Flood Release Coordination -							75,000
New	San Joaquin River							

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[1] CWC supports Corps' recommendation that this project is to be funded under "Continuing Authorities" Program (Section 205)

[2] Reconnaissance Study is 100 percent federally funded Non-Federal Cost sharing will begin at Feasibility Study Level.

[3] Farmington Dam (CWC 131) will be included in the $800,000 CWC recommends for the new Stockton Metropolitan Area Study (CWC 120).

(Rev 3/14/95)

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
130 New	Friant Dam						–	0
131 - New	Farmington Dam	Federal NonFed Total	600,000 0[2] 600,000	–	0	600,000	0	–[3]
132	San Joaquin River Basin, South Sacramento County Streams	Federal NonFed Total	2,070,000 1,400,000 3,470,000	630,000	168,000	200,000	500,000	500,000
133	Firebaugh Riparian Restoration and Management Plan (Fresno)							75,000[4]
134	San Joaquin River Basin, Firebaugh & Mendota (Fresno)	Federal NnnFed Total	875,000 525,000 1,400,000	98,000	252,000	232,000	0	150,000
135	San Joaquin River Basin, Arroyo Pasajero (Fresno) (Also see CWC 660)	Federal NonFed Total	3,195,000 2,330,000 5,525,000	1,170,000	850,000	977,000	700,000	700,000
136	San Joaquin River Basin, Pine Flat Dam, Fish and Wildlife Habitat Restoration (Fresno)	Federal NonFed Total	2,000,000 1,500,000 3,500,000	500,000	168,000	200,000	500,000	500,000
137	San Joaquin River Basin, Caliente Creek (Kern)	Federal NonFed Total	2,944,000 1,147,000 4,091,000	2,521,000	252,000	300,000	171,000	171,000
138	San Joaquin River Basin, Kaweah River Basin (Also see CWC 238)	Federal NonFed Total	1,757,000 1,432,000 3,189,000	1,457,000	260,000	–	40,000	40,000
139	San Joaquin River Basin, Tule River Basin	Federal NonFed Total	1,444,000 1,129,000 2,573,000	819,000	25,000	–	0	200,000
151	Marin County Shoreline - San Clemente Creek (Also see CWC 251)	Federal NonFed Total	1,122,000 675,000 1,797,000	743,000	145,000	140,000	234,000	234,000
152	Upper Guadalupe River (Santa Clara)	Federal NonFed Total	2,580,000 2,100,000 4,680,000	1,820,000	246,000	100,000	285,000	285,000
153	Upper Penitentia Creek (Santa Clara)	Federal NonFed Total	750,000 450,000 1,200,000	40,000	260,000	150,000	0	300,000
171	Lower Mission Creek (Santa Barbara)	Federal NonFed Total	2,799,000 750,000 3,549,000	1,549,000	419,000	--	81,000	300,000
180 New	Central Basin Groundwater Project (Los Angeles)	Federal	1,845,000	750,000	0	–	375,000	375,000
181	Northern Los Angeles County	Federal NonFed Total	1,250,000 750,000 2,000,000	150,000	350,000	350,000	0	0
182A	Los Angeles County Drainage Water Conservation and Supply (Hansen and Lopez Dams)	Federal NonFed Total	1,270,000 1,120,000 2,390,000	150,000	250,000	350,000	400,000	400,000
182B	Los Angeles County Drainage Water Conservation and Supply (Santa Fe & Whittier Narrows Dams)	Federal NonFed Total	1,360,000 1,210,000 2,570,000	150,000	250,000	350,000	460,000	460,000
183	Southeast Los Angeles Water Conservation	Federal NonFed Total	600,000 0[2] 600,000	–	503,000	–	0	0
184	Seven Oaks and Prado Dams Water Conservation (San Bernardino, Riverside, Orange)	Federal NonFed Total	1,168,000 1,090,000 2,258,000	503,000	400,000	400,000	265,000	265,000

Reconnaissance Study is 100 percent federally funded Non-Federal Cost sharing will begin at Feasibility Study Level.

[3] Farmington Dam (CWC 131) will be included in the $800,000 CWC recommends for the new Stockton Metropolitan Area Study (CWC 120).

[4] To be funded under "Project Modifications for Improvement of the Environment" Program (Section 1135)

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
185	San Antonio Creek	Federal	1.125.000	–	300,000	–	150,000	350,000
	(San Bernardino)	NonFed	675.000					
		Total	1.800.000					
186	Mission Zanja Creek	Federal	1,370,000	500,000	0	300,000	0	300,000
	(San Bernardino)	NonFed	870,000					
		Total	2,240,000					
187	Norco Bluffs, Santa Ana River	Federal	1,430,000	855,000	200,000	400,000	0	375,000
	(Riverside)	NonFed	925,000					
		Total	2,355,000					
188	Whitewater River Basin	Federal	2,080,000	535,000	310,000	650,000	370,000	370,000
	(Riverside)	NonFed	1,655,000					
		Total	3,735,000					
Preconstruction Engineering and Design								
201	American River Watershed	Federal	19,200,000	8,962,000	2,099,000	2,000,000	3,000,000	3,000,000
		NonFed	0[2]					
		Total	19,200,000					
232	Tule River - Success Reservoir	Federal	3.179.000	1,638.000	841,000	585,000	700,000	700,000
	($700.000 in for O&M for seismic)	NonFed	0					
	(Tulare)	Total	3,179,000					
238	Kaweah River (Tulare)	Federal	3.900.000	0	0	500,000	0	500,000
	(Also see CWC 138)	NonFed	0[2]					
		Total	3.900.000					
251	San Clemente Creek	Federal	1.600.000	0	0	0	0	150.000
	(Also see CWC 151)	NonFed	0[1]					
		Total	1.600.000					
252	Napa River Flood Control Project	Federal	11,200.000	9.513.000	900,000	900,000	787,000	787.000
		NonFed	0					
		Total	11.200.000					
253	San Rafael Canal (Marin)	Federal	2.110.000	1.168.000	692,000	565,000	250,000	250.000
		NonFed	0					
		Total	2.110.000					
254	Pajaro River, Watsonville (Santa Cruz)	Federal	1,650.000	0	500,000	–	500,000	500,000
		NonFed	0					
		Total	1,650.000					
255	San Lorenzo River (Santa Cruz)	Federal	1.000.000	291,000	609,000	500,000	100,000	100.000
		NonFed	0					
		Total	1,000,000					
Construction - General								
301	Upper Sacramento River -	Federal	3.000.000		500,000[1]	500,000	0	500.000
	Golden State Island	NonFed	1,000,000					
	(1135)	Total	4,000,000					
302	Sacramento River Restoration at	Federal	10,650.000	2.193.000	400,000	400,000	0	300,000
	Glenn-Colusa Irrigation District	NonFed	3,550,000					
	(Glenn) (Also see CWC 622)	Total	14,200.000					
303	Sacramento River Bank Protection	Federal	112,200.000	85,872,000	2,400,000	2,400,000	3,000,000	3,000,000
		NonFed	46,900,000					
		Total	159,100,000					
304	Sacramento River Flood Control	Federal	76,375.000	74.975,000	1,300,000	2,200,000	100,000	100,000
	Project	NonFed	95,628,000					
		Total	172,003,000					

Reconnaissance Study is 100 percent federally funded. Non-Federal Cost sharing will begin at Feasibility Study Level

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
305	Mid-Valley Area	Federal	17,000,000	1,352,000	870,000	–	0	500,000
New	Levee Reconstruction	NonFed	5,600,000					
		Total	22,600,000					
306	Marysville/Yuba City	Federal	23,300,000	2,937,000	2,700,000	3,000,000	6,000,000	6,000,000
	Levee Reconstruction	NonFed	7,700,000					
		Total	31,000,000					
307	Lower Sacramento Area	Federal	3,900,000	5,000	1,530,000	–	0	500,000
New	Levee Reconstruction	NonFed	1,300,000					
		Total	5,200,000					
308	Sacramento Urban Area Levee	Federal	28,800,000	23,640,000	1,263,000	1,500,000	1,870,000	1,870,000
	Reconstruction (Floodwall) Project	NonFed	18,000,000					
	(Sacramento)	Total	46,800,000					
309	West Sacramento Project	Federal	15,200,000	1,595,000	752,000	500,000	7,000,000	7,000,000
		NonFed	5,000,000					
		Total	20,200,000					
310A	Yolo Basin Wetlands	Federal	7,170,000	2,554,000	3,896,000	2,000,000	720,000	720,000
		NonFed	4,830,000					
		Total	12,000,000					
310B	Yolo Basin Wetlands (Davis site)	Federal	800,000	250,000	30,000	–	–	–
		NonFed						
		Total	800,000					
311	San Joaquin River	Federal	4,500,000[4]		0	500,000	–	500,000[4]
New	China Island Habitat Restoration	NonFed	1,500,000					
		Total	6,000,000					
331	New Melones Lake	Federal	400,500,000	370,993,000	0	1,000,000	0	1,000,000
	(Calaveras.Tuolumne)	NonFed	0					
		Total	400,500,000					
332	Merced County Streams	Federal	85,900,000	14,849,000	699,000	830,000	699,000	699,000
		NonFed	38,600,000					
		Total	124,500,000					
351	Wildcat and San Pablo Creeks	Federal	17,700,000	14,303,000	2,157,000	2,157,000	1,240,000	1,240,000
	(Contra Costa)	NonFed	15,100,000					
		Total	32,800,000					
352	Guadalupe River (Santa Clara)	Federal	63,300,000	24,177,000	6,073,000	10,000,000	8,100,000	8,100,000
		NonFed	74,470,000					
		Total	137,770,000					
353	Coyote and Berryessa Creeks	Federal	41,850,000	10,510,000	12,000,000	12,000,000	12,000,000	12,000,000
	(Santa Clara)	NonFed	36,350,000					
		Total	78,200,000					
354	Santa Paula Creek (Ventura)	Federal	17,100,000	7,297,000	500,000	500,000	300,000	4,000,000
		NonFed	4,800,000					
		Total	21,900,000					
381	Los Angeles County Drainage Area	Federal	283,000,000	7,554,000	2,896,000	500,000	11,367,000	11,367,000
	Project	NonFed	177,000,000					
		Total	460,000,000					
382	Santa Ana River Mainstem	Federal	778,000,000	325,681,000	69,945,000	66,000,000	70,249,000	70,249,000
	(Use $5.0 million to	NonFed	555,000,000					
	start San Timoteo Creek)	Total	1,333,000,000					

[4] To be funded under "Project Modifications for Improvement of the Environment" Program (Section 1135).

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
U.S. BUREAU OF RECLAMATION								
General Investigations (Mid-Pacific Region)								
505	American River Folsom South Optimization Study	Federal	1.052.318	435.100	400,000	400,000	–	400,000
		NonFed	2,150,000					
		Total	3,202,318					
530	San Joaquin River Basin Comprehensive Plan	Federal	1,262,500	1,191,277			1,000,000	1,000,000
		Restoration	2.715.000	495,431	1,000,000	1,000,000		
		NonFed	1,600,000					
		Total	5,577,500					
535	Minor Work in connection with completed projects	Federal	Continuing	211,276	10,000	10,000	10,000	10,000
537	General Planning Studies	Federal	Continuing	0	197,000	350,000	550,000	550,000
540	Technical Assistance to States	Federal	Continuing	1,630,449	125,000	140,000	140,000	140.000
545	Investigation of Existing Projects	Federal	Continuing	153,367	30,000	30,000	30,000	30,000
550	Environmental and Interagency Coordination Activities	Federal	Continuing	15,761,363	373,000	350,000	350,000	350,000
Construction Projects (Mid-Pacific Region)								
600	**Trinity River Restoration Program**	Federal	307,105,903	301,507,396	4,295,000	5,000,000	5,000,000	5.000,000
610	**Shasta Division**							
611	Temperature Control Device - Shasta Dam	Federal	72,963,000	6,226,466	18,000,000	5,000,000	549,000	549,000
		Restoration	7.037.000	1,312,777	7,037,000	7,037,000	11,281,000	11,281.000
		NonFed	0					
		Total	80.000.000	7,539.243			11,830,000	11,830.000
612	Coleman National Fish Hatchery Modification	Federal	29.358.000	0	0		0	Support[5]
		Restoration	5,335,000	1,560,803	2,735,000	2,735,000		
		Total	34,693,000					
613 Added	Anderson-Cottonwood Irrigation District Diversion Dam						200,000	200.000
620	**Sacramento River Division**							
621	Colusa Basin Drain (Also see CWC 110)				75,000	–	–	750.000
622	Hamilton City Pumping Plant Fish Facility (Glenn) (Also see CWC 302)	Federal	37,315.000	1,237,270	1,425,000	1,500,000	0	3.000,000
		Restoration		0				
		Non Fed		0				
		Total	37,315.000	1,237,270				
623	Winter-Run Chinook Salmon Captive Broodstock Program	USBR	700,000	1.164	400.000	250,000	0	1,100,000
		USFWS				250,000		
		NOAA				171,556		
		Total NonFed				1,610,000		
		Total	12,616,257		400,000	2,281,556		
624	RBDD Demonstration Research Facility Evaluation	Federal	5,830,000	383,459	400,000		0	1,300.000
		Restoration	920,000	0	920,000	920,000		
		NonFed		0				
		Total	6,750,000	383,459	1,320,000			
625	RBDD Fish Passage Program	Federal	5,163,00	1,299.988	495,000		0	1,000,000
		Restoration	500,00	0	500,000			
		NonFed		0				
		Total	5,663,000	1,299,988	995,000			
626	RBDD Demonstration Research Pumping Facility	Federal	9,591,808	5,902.667	0	0	0	0[6]

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[5] CWC continues to vigorously support completion of the Station Development Plan, but recommends no additional FY96 funding in order that the Shasta Temperature Control Device proceed toward a 1996 completion

No additional funds needed, facility to be completed with FY95 funding

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
627	Central Valley Project Improvement Act Supporting Investigations	Federal	1,700,000	0	0		0	0
		Restoration	3,300,000	84		1,000,000	1,500,000	1,500,000
		NonFed		0				
		Total	5,000,000	0 84				
630	Auburn-Folsom South Unit	Fed	2,335,830,000	353,311,618	2,137,000	2,182,000	2,000,000	2,000,000
		NonFed	2,350,000	952,624				
		Total	2,338,180,000	354,264,242				
640	**Delta Division**							
641	Georgiana Slough Fish Barrier	Federal		400,000	350,000		0	0
		NonFed						
642	Suisun Marsh Protection	Federal	60,574,000	26,168,493	800,000	2,000,000	300,000	300,000
643	Delta Support Program (Interagency Ecological Program)	Federal	50,467,387	16,935,743	3,024,000	4,024,000	3,200,000	3,200,000
644	Bay/Delta Ecosystem Partnership	Federal		0	400,000	--	2,500,000	2,500,000
		NonFed						
645	South Delta Barriers	Federal		41,847	200,000	3,000,000	500,000	500,000
		Restoration			0		0	
646 New	Fish Screen at Rock Slough (Contra Costa)	Restoration						80,000
650	**San Joaquin Division**							
651	Land Retirement (Includes Prospect Island)	Federal	46,593,000	0	1,228,000		0	0
		Restoration	11,874,000	25,758	6,974,000	6,974,000	6,118,000	6,118,000
		Total	58,467,000	25,758	8,202,000			
652	San Joaquin Basin Action Plan	Federal	13,787,000	0	0		0	0
		Restoration	13,037,000	471,818	5,437,000	5,437,000	1,000,000	1,000,000
		Total	26,824,000	471,818				
653	Water Acquisition	Federal	43,413,000	0	0	0	0	0
		Restoration	7,587,000	2,319,580	5,587,000	5,587,000	11,005,000	11,005,000
		Total	51,000,000	2,319,580				
654 New	Real Time Management Demonstration - San Joaquin River Management Plan							300,000
660	**San Luis Unit - CVP** (Includes funds for Arroyo Pasajero flood control project)	Fed	1,524,956,000	563,833,261	647,000	676,000	800,000	800,000
		NonFed	232,772,114	209,334,250			275,000	
		Total	1,757,728,114	773,167,511			1,075,000	
670	**Miscellaneous Project Programs (Mid-Pacific Region)**							
671	Anadromous Fish Program	Federal	12,000,000	0	0		0	0
		Restoration	4,570,000	264,496	2,295,000	2,295,000	3,000,000	3,000,000
		Total	16,570,000	264,496				
672	Central Valley Assessment/ Monitoring Program	Federal	17,800,200	0	0		0	0
		Restoration	2,035,000	0	2,035,000	1,035,000	2,000,000	2,000,000
		NonFed		0				
		Total	19,835,000	0				
673	CVP Water Augmentation Program (Study)	Federal	0	0	0		0	0
		Restoration	2,450,000	571,935	900,000	900,000	0	
		Total	2,450,000	571,935				
674 New	Fish Screening Criteria Study -							500,000

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
675	Coho Salmon Program	Federal	150,000	0	150,000	--	0	0
	(Also see CWC 685 and 686)							
676	Dedicated Project Yield	Federal	950,000	0	0		0	0
		Restoration	550,000	224,820	275,000	275,000	375,000	375,000
		Total	1,500,000	224,820				
677	Ecosystem Water Conservation Study	Federal	7,600,000	0	0		1,900,000	1,900,000
		Restoration	1,950,000	370,295	1,200,000	1,200,000	0	
		NonFed		0				
		Total	9,550,000	370,295				
678	Evaluate Project Operations	Federal	800,000	0	0	0	300,000	300,000
		Restoration	460,000	18,417	230,000	230,000	0	
		NonFed	0	0		0		
		Total	1,200,000	18,417				
679	Flood Agricultural Lands for	Federal	19,000,000	0	0		0	0
	Waterfowl Yield Enhancement	Restoration	1,000,000	0	1,000,000	1,000,000	500,000	500,000
		Total	20,000,000	0				
680	Kaweah River Delta Corridor	Federal	1,000,000	30,599	0	Support	0	0
	Enhancement Project							
681	Ongoing Contracts/CWPSC/Melones	Federal	9.257,551	774.555	1,350,000	1,350,000	3,669,000	3.669.000
682	Project Fishery Impacts	Federal	500,000	0	0	0	0	0
		Restoration	0	5,374	0		0	
		Total	500,000	5,374				
683	Refuge Water Supply	Federal	49,696.000	0	0		0	
		Restoration	3.310.000	486.795	3,310,000	3,310.000	3.000,000	3,000,000
		NonFed		0				
		Total	53,006.000	486,795				
684	Refuge Wheeling Costs	Federal	11.300.000	0	0		0	0
		Restoration	2.400.000	764.369	1.200,000	1,200,000	1,700,000	1.700.000
		NonFed						
		Total	13,700.000	764.369				
685	Salmon Stamp Program	Federal	100.000	0	100.000	100.000	0	0
	(Also see CWC 675 and 686)							
686	Spring Run Salmon Program	Federal	300.000	0	300,000	300,000	0	0
	(Also see CWC 675 and 685)							
687	Unscreened Diversions	Federal	27.119.000	0	4.000,000	4,000,000	6.000.000	6.000.000
	(Also see CWC 688 and 689)	Restoration	616.951	616,951				
		NonFed		0				
		Total	28,119,000	616.951				
688	Reclamation District 108	Federal	450.000	0	450,000		0	650,000
	(Unscreened Diversions)	NonFed		0			0	
	(Also see CWC 687 and 689	Total	450,000	0				
689	Reclamation District 1004	Federal	215.000	0	215,000		0	215,000
	(Unscreened Diversions)	NonFed		0			0	
	(Also See CWC 687 and 688)	Total	215,000	0				
690	Water Conservation Projects	Federal	3.100,000	234,144	1,000,000	1,000,000	0	0
		Restoration	2,000,000	32,474	1,000,000	0		
		Total	5,100,000	266,618	2,000,000			
691	Wetlands Joint Venture -						500,000	500,000
Added	Upper Sacramento River							
692	Spawning Gravel - Locations as needed						600,000	600,000
Added								

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
Operation and Maintenance (Mid-Pacific Region)								
701	Central Valley Project	Federal	Continuing		70,504,000	68,349,000	67,739,000	67,739,000
703	Reclamation Law Administration	Federal	Continuing		1,800,000	1,800,000	1,530,000	1,530,000
704	Land Resources Management Program	Federal	Continuing		317,000	317,000	1,254,000	1,254,000
705	Cachuma Project	Federal	Continuing		239,000	239,000	716,000	716,000
706	Orland Project	Federal	Continuing		578,000	578,000	601,00	601,00
707	Solano Project	Federal	Continuing		1,827,000	1,827,000	2,172,000	2,172,000
Loan Projects (Westwide)								
800	Small Reclamation Projects Admin	Federal	Continuing		600,000	600,000	425,000	600,000
Loan Projects (Mid-Pacific Region)								
801	Water Reclamation Facility for Crop Irrigation (Monterey) (Salinas)	Federal USBR funds Treasury funds NonFed Total	20,892,000 6,900,000 27,792,000		1,470,000 <900,000> <570,000>	500,000	1,980,000 <1,100,000> <880,000>	1,980,000 <1,100,000> <880,000>
802	Castroville Irrigation Water Supply Project (Monterey)	Federal USBR funds Treasury Funds NonFed Total	32,600,000 10,914,000 43,514,000		1,755,000 <1,064,000> <691,000>	500,000	2,710,000 <1,500,000> <1,210,000>	2,710,000 <1,500,000> <1,210,000>
PL 102-575 (Mid Pacific Region)								
901	San Francisco Area Water Reclamation Study	Federal NonFed Total	3,690,000 3,690,000 7,380,000		790,000	790,000	700,000	1,500,000
903	San Jose Area Water Reclamation and Reuse Program	Federal NonFed Total	32,500,000 97,500,000 130,000,000	0	1,715,000	--	1,750,000	9,000,000
General Investigations (Lower Colorado Region)								
1001	Colorado River Water Quality Improvement Feasibility Investigation (LC only) ($15,000 in CA in FY 95)	Federal	9,465,000	8,564,115	210,000	310,000	75,000	75,000
1002	Environmental and Interagency Coordination Activities	Federal	Continuing	11,248,261	85,000	85,000	100,000	100,000
1003	General Planning	Federal	Continuing	0	296,000	296,000	375,000	375,000
1004	Imperial Valley Water Reclamation and Reuse Study	Federal NonFed Total	500,000 500,000 1,000,000	0	75,000	75,000	175,000	175,000
1005	Investigation of Existing Projects	Federal	Continuing	308,076	50,000	50,000	50,000	50,000
1006	Lower Colorado River Regulatory Storage Study	Federal	300,000	150,000	150,000	150,000	0	0
1007	Minor Work on Completed Projects	Federal	Continuing	325,067	55,000	55,000	55,000	55,000
1008	Salton Sea Area - Study	Federal NonFed Total	200,000 200,000 400,000	100,000	100,000	100,000	0	100,000
1009	Technical Assistance to States	Federal	Continuing	1,304,378	175,000	175,000	265,000	265,000
1010 Added	Lower Owens River Environmental Study	Federal NonFed Ttal	300,000 300,000 600,000				100,000	100,000
1011 Added	Malibu Creek Fishery Enhancement Study	Federal NonFed Total	250,000 250,000 500,000				50,000	50,000
1012 New	L C Indian Water Mgmt Study	Federal	200,000				75,000	75,000
.013 New	Southern California Coastal Water Supply Study	Federal NonFed Total	750,000 750,000 1,500,000				50,000	50,000

CWC No.	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Rudget FY 1996	CWC Final Recommendation FY 1996
Operations and Maintenance (Lower Colorado Region)								
(CWC supported the recommendations of the Colorado River Board for following O&M projects)								
101	Parker-Davis Project	Federal	Continuing		3,486,000	3,486,000	4,101,000	4,101,000
	($1,066,000 in CA in FY 95)							
1102	Yuma Area Projects	Federal	Continuing		23,084,000	23,084,000	21,332,000	21,332,000
	($6,613,000 in CA in FY 95)							
Loan Projects (Lower Colorado Region)								
1201	Eastern Municipal Water District	Federal	31,100,000	17,052,272	4,160,000	4,160,000	6,000,000	6,000,000
	Water Facilities Plan	USBR funds		<7,982,000>	<2,000,000>		<2,200,000>	<2,200,000>
	(Riverside)	Treasury funds		<9,070,272>	<2,160,000>		<3,800,000>	<3,800,000>
		NonFed	13,621,400					
		Total	44,721,400					
1202	Chino Basin Desalination	Federal	32,064,000	0	1,878,000	500,000	2,717,000	2,717,000
	(Santa Ana Watershed	USBR funds			<900,000>		<1,100,000>	<1,100,000>
	Project Authority)	Treasury funds			<978,000>		<1,617,000>	<1,617,000>
	(San Bernardino, Riverside)	NonFed	15,623,000					
		Total	47,687,000					
1203	San Sevaine Creek Water Project	Federal	51,976,594	0	0	500,000	0	250,000
	(San Bernardino, Riverside)	NonFed	30,871,816					
		Total	82,848,410					
1204	Temescal Valley Project	Federal	22,270,000	0	620,000	500,000	1,397,000	1,397,000
	(Elsinore Valley MWD)	USBR funds			<350,000>		<700,000>	<700,000>
	(Riverside)	Treasury funds			<270,000>		<697,000>	<697,000>
		NonFed	10,659,000					
		Total	32,929,000					
PL 102-575 (Lower Colorado Region)								
1301	L A Area Water Reclamation	Federal	68,120,000	5,250,000	8,250,000	5,250,000	9,300,000	9,300,000
	and Reuse (Includes West Basin,	NonFed	204,360,000					
	East Valley and Terminal Island)	Total	272,480,000					
1302	Orange County Regional Water	Federal	42,600,000		0	250,000	--	600,000
	Reclamation Project - Phase I	NonFed	127,800,000					
		Total	170,400,000					
1303	San Gabriel Basin Project (Includes	Federal	38,090,000	5,000,000	5,000,000	5,000,000	9,750,000	9,750,000
	San Gabriel Basin, Demo. Rio	NonFed	114,270,000					
	Hondo & San Gab Valley Wtr Recl)	Total	152,360,000					
1304	San Diego Area Reclamation (Includes	Federal	172,590,000	0	2,500,000	Support	2,340,000	9,000,000
	San Diego, Escondido, Poway,	NonFed	517,770,000					
	Padre Dam Muni WD, Otay Water	Total	690,360,000					
	Dist. and San Diego County Water Authority)							
1305	Water Replenishment District	Federal	20,305,000		0	1,775,000	--	Support
	of Southern California	NonFed	22,519,000					
		Total	42,824,000					
1306	Brackish Water Reclamation Demonstration							500,000
New	Facility (Ventura)							
1309	Southern California Comprehensive	Federal	3,000,000	406,000	325,000	325,000	750,000	750,000
	Water Reclamation and Reuse	NonFed	3,000,000					
	General Investigations Program)	Total	6,000,000					

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
	Colorado River Salinity Control (CWC supported the recommendations of the Colorado River Board for following CRSC projects)							
401	Colorado River Salinity Control Program (G I)	Federal	61,880,082	55,330,468	1,152,846		375,000	375,000
	Colorado River Basin Salinity Control Project (Construction							
1402	**Title I Division**	Federal	458,835,000	396,658,936	3,011,000		2,300,000	2,300,000
1403	**Title II Division**							
1403A	Grand Valley Unit (UC Only)	Total	257,570,000	138,453,310	7,070,000	7,270,000	5,799,000	5,799,000
1403C	Lower Gunnison Basin Unit (UC Only)	Federal	251,852,000	23,316,424	698,000	698,000	1,231,000	1,231,000
1403B	Paradox Valley Unit (UC Only)	Federal	66,339,157	63,689,157	2,350,000	3,050,000	300,000	300,000
1404	**Title II, New Format**	To be determined		0	0		6,000,000	6,000,000

WEDNESDAY, MARCH 29, 1995.

CENTRAL VALLEY FLOOD CONTROL PROJECTS

WITNESSES

RAYMOND E. BARSCH, GENERAL MANAGER, THE STATE RECLAMATION BOARD

MICHAEL STEARNS, PRESIDENT, THE STATE RECLAMATION BOARD

Mr. BARSCH. Mr. Chairman and Members of the committee, I am Ray Barsch, General Manager of the Reclamation Board. I appreciate the opportunity to be here.

I have also submitted a statement for the record which contains all of the projects that were adopted by the board on March 17th of this year.

I would like to emphasize four projects. Three of them are on the Sacramento River where Congressman Fazio has been many times for the many floods this year. That is the Sacramento River and Tributaries Ecomanagement Plan, the Tehama-Hamilton Flood Control Project, the Upper Sacramento River Demonstration Project on Golden State Island, and one on the San Joaquin River, the China Island Environmental Restoration Project.

Mike Stearns our Board President had to leave, but has been around this week talking to you. He wanted me to say that in your process attempting to reduce the Federal spending on flood control, that you keep one thing in mind, the highest priority of all these flood control projects is really just to save loss of life and property.

We recommend that any plan to change the policy of the Water Resources Development Act of 1986, go through the authorization process where we can have hearings and not just come down through the administration's budget process.

Thank you for the opportunities to be here this morning.

[The statements of Mr. Barsch, Mr. Tinsley, and Mr. Anderson follow:]

STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE RECLAMATION BOARD

RECOMMENDATIONS
FEDERAL FLOOD CONTROL PROJECTS

IN THE

CALIFORNIA CENTRAL VALLEY

FISCAL YEAR 1996

Presented to

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
Honorable John Myers, Chairman

and

UNITED STATES SENATE
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
Honorable Pete V. Domenici, Chairman

by

Michael Stearns, Member
Raymond Barsch, General Manager

March 1995

THE RECLAMATION BOARD'S FINAL RECOMMENDATIONS FOR FEDERAL FLOOD CONTROL PROJECTS

1996 Summary
(In $1,000)

CORPS OF ENGINEERS' PROJECTS	Page	President's Budget	Board Recommends
I. General Investigations (Surveys)			
A. Northern California Streams			
-- Tehama-Hamilton City Flood Control Study	2		*
-- Winters and Vicinity (Yolo)	2	200,000	200,000
-- Cache Creek Environmental Restoration	2	200,000	200,000
-- Yuba River Basin	3	100,000	100,000
-- Sacramento River and Tributaries - Ecosystem Management Plan	3	0	800,000
B. Sacramento-San Joaquin Delta			
-- Sacramento-San Joaquin Delta Investigation	3	800,000	800,000
-- South Sacramento County Streams	3	500,000	500,000
-- Prospect Island	4	100,000	100,000
-- Western Delta Islands	4	0	300,000
C. San Joaquin River Basin			
-- Arroyo Pasajero	4	700,000	700,000
-- Caliente Creek	5	171,000	171,000
-- Firebaugh and Mendota	5	0	150,000
II. General Investigations (Preconstruction Engineering and Design)			
A. American River Watershed	5	3,000,000	3,000,000
B. Mid-Valley Area Levee Reconstruction	5	0	500,000
C. Lower Sacramento Area Levee Reconstruction	6	0	500,000
D. Kaweah River	6	0	500,000
E. Tule River (Success Reservoir) (Funded Under O&M)	6	700,000	700,000
III. Construction (General)			
A. Marysville/Yuba City Levee Reconstruction	6	6,000,000	6,000,000
B. Merced County Streams	6	699,000	699,000
C. Sacramento River Bank Protection	7	3,000,000	3,000,000
D. Sacramento River Flood Control	7	100,000	100,000
E. Sacramento River at Glenn-Colusa Irrigation District	7	0	300,000
F. Sacramento Urban Area Levee Reconstruction (Floodwall)	7	1,870,000	1,870,000
G. Upper Sacramento River Demonstration - Golden State Island	7	0	500,000**
H. China Island Environmental Restoration	8	--	500,000**
I. West Sacramento	8	7,000,000	7,000,000
J. Yolo Basin Wetlands	8	720,000	720,000

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*The Board supports this project to be funded under the "Continuing Authorities" Program (Section 205).

**To be funded under "Project Modifications for Improvement of the Environment" Program (Section 1135).

THE RECLAMATION BOARD'S RECOMMENDATIONS

The Reclamation Board, as the State agency which furnishes required local assurances for a majority of the federal flood control projects in California's Central Valley, respectfully submits this statement of support for the following projects.

The projects described below are of particular importance to the health, safety, and well-being of Central Valley residents and are important to The Reclamation Board to see that they are started and/or kept on schedule.

I. General Investigations (Surveys)

A. Northern California Streams

This survey, authorized in 1962, is a study of the Sacramento River and its tributaries in regard to flood control measures. The following are interim study proposals for funding in Fiscal Year 1996.

Tehama-Hamilton City Flood Control Study (Tehama and Glenn Counties)

The study area would cover two small towns on the west bank of the Sacramento River in Tehama and Glenn Counties. The town of Tehama was flooded in 1986 and some homes were raised. In 1995, the area was flooded again, the homes that did not qualify for raising were again flooded. Hamilton City is protected by a levee that is not high enough to give the city adequate protection. This area needed emergency sandbagging protection in 1986 and again in 1995.

The Board recommends that a study be conducted by the Corps of Engineers under Section 205 (small projects).

Winters and Vicinity (Yolo)

The study area is in southwestern Yolo County approximately 30 miles west of Sacramento. The City of Winters is located along Putah Creek and Dry Creek and is bordered to the north by Moody Slough and Chickahominy Slough. Winters, population 5,000, floods every two to five years due primarily to inadequate flow capacity of Moody Slough. Flooding has also occurred from Dry Creek, Putah Creek, Chickahominy Slough, and multiple local canals. The 1980 flood covered more than 12,000 acres and flooding during extended rainstorms has caused damage to structures, streets and roads, agricultural land, equipment and crops. Potential projects include detention basins combined with diversion channels, realignment of canals and nonstructural measures including floodproofing and raising of structures.

The Board supports the $200,000 in the President's Budget.

Cache Creek Environmental Restoration

The Cache Creek basin is located about 15 miles northwest of Sacramento, California and contains about 1,150 square miles of drainage area. The Cache Creek riparian corridor is a 30-mile reach of lower Cache Creek from the town of Capay to the Cache Creek Settling Basin. The riparian corridor has been severely degraded as a result of multiple activities and developments along the creek including flood control works, recreation, water supply, and gravel mining. In addition, upstream water-related projects have changed hydrologic conditions along Cache Creek and have significantly reduced the wildlife habitat within the area. Local interests strongly support developing an environmental restoration plan to preserve and restore wildlife resources and vegetation along the Cache creek corridor. Potential restoration measures include gravel pit restoration, wetland creation within the settling basin, and creekside riparian plantings. The gravel pit proposal would involve construction of gates, canals, and small detention structures at abandoned gravel sites. Water would be diverted into the restored sites thereby creating seasonal and permanent wetlands and riparian areas.

The Board supports the $200,000 in the President's Budget to complete the reconnaissance study.

Yuba River Basin

The 1986 flood and the resulting levee failure made everyone aware that flooding is a public safety issue in this area. Thus, a reconnaissance-level study of alternatives for flood control and related purposes in the Yuba River watershed was completed, and a cost-shared feasibility study was initiated.

The Board supports the $100,000 in the President's Budget for continuation of this feasibility investigation.

Sacramento River and Tributaries - Ecosystem Management Plan

The Board, by Resolution No. 95-4 dated February 17, 1995, requested the Corps to initiate a new study to evaluate the full Sacramento River Flood Control Project. Working in cooperation with other federal and State agencies and public interests will lead to a comprehensive management plan that considers flood control project modifications or reconfigurations and evaluate the coordinated and/or integrated with existing studies and activities occurring on the Sacramento River. Examples are the Sacramento River Bank Protection Project and the Upper Sacramento River Fisheries and Riparian Habitat Management Plan (SB 1086).

The Board recommends an appropriation of $800,000 to initiate this investigation.

B. Sacramento-San Joaquin Delta

Sacramento-San Joaquin Delta Investigation

The study area is located in Sacramento, Yolo, San Joaquin, Contra Costa, and Solano Counties and extends from the southern limits of the City of Sacramento to Tracy, and from the City of Stockton west to Suisun Bay. The area consists of about 700,000 acres of land segregated into some 100 tracts and islands, bounded by interconnecting waterways, which are confined by 1,100 miles of levees. A critical need for levee rehabilitation throughout the Delta exists. The most recent levee failures in the study area were in February 1986, which caused damages estimated at $17 million. The purpose of the study is to determine viable improvements for flood control, salinity intrusion caused by levee failures, navigation, recreation, fish and wildlife, and long-term management of the complex island/waterway network in the Delta.

The Board supports the $800,000 in the President's Budget for continuation of this investigation.

South Sacramento County Streams

These streams are located in the southerly portions of the City of Sacramento. The existing flood control projects in Sacramento do not address the flood issues in this rapidly developing area. Levees along Morrison Creek and tributaries provide less than a 100-year level of flood protection. Potential projects include a combination of channel and levee improvements and detention facilities.

The Board supports the $500,000 in the President's Budget for continuation of this investigation.

Prospect Island

The study area is located in the northwest portion of the Sacramento-San Joaquin Delta region, approximately 25 miles southwest of Sacramento. Prospect Island is a 5-mile long, rectangular island comprised of 1,580 acres, bordered by the Sacramento River Deep Water Ship Channel to the west and Miner Slough and Ryer Island to the east. The costs of operating and maintaining the existing ship channel and associated levees could be reduced and needed wetlands could be created. One proposal is to discontinue the use of the existing project levees, inundate the island, and create wetlands. Flood damage prevention will also be studied in conjunction with environmental restoration.

The Board supports the $100,000 in the President's Budget.

Western Delta Islands

The study area includes Twitchell Island, Jersey Island, and Webb Tract in the Western Delta area in Sacramento and Contra Costa Counties. These islands are at risk of flooding due to levee instability. Failure of any of these islands could cause saltwater to intrude far into the Delta rendering the water unsuitable for agricultural and domestic uses and further adversely impacting existing invaluable fish and wildlife habitat. Department of Water Resources studies conclude that Twitchell and Jersey islands pose a serious threat and Webb Tract a potential threat to water quality if permanently flooded. Additionally, there is a desire that fish and wildlife resources of the Delta can be restored. The study will emphasize both flood damage prevention and environment restoration.

The Board recommends an appropriation of $300,000 to continue this investigation.

C. San Joaquin River Basin

This survey, authorized in 1964, will investigate the problems of flood control, irrigation, municipal water supply, power, recreation, and fish and wildlife. Flooding is a major problem and during the severe floods of 1969, 1983, and 1986, the area experienced extensive damages. The following are interim studies supported for funding in Fiscal Year 1995.

Arroyo Pasajero

There is a flood problem associated with the Arroyo Pasajero and Cantua Creek watersheds near Coalinga, California in southwest Fresno County. Updated hydrologic and sedimentation studies now reveal that both the estimated sediment loads and storm volumes are several times greater than original design estimates. There are several public facilities in the floodplain including the California Aqueduct, Lemoore Naval Air Station, Interstate 5, and Highway 198. The lands east of the California Aqueduct are subject to flood damage as well as the Aqueduct.

The Board recommends $700,000 to continue this investigation.

Caliente Creek

The previous feasibility study determined that a detention basin dam was infeasible. Alternative flood reduction measures are being considered including nonstructural alternatives.

The Board supports the $171,000 in the President's Budget to finish this feasibility investigation.

Firebaugh and Mendota

The study area is located in northwestern Fresno County, California, approximately 35 miles west of the City of Fresno. The town of Firebaugh is located on the west bank of the San Joaquin River while the town of Mendota is approximately 10 miles southeast of Firebaugh. Current populations of Firebaugh and Mendota are 5,000 and 7,000, respectively. Flooding in the study area is primarily due to overflows from Panoche Creek and Silver Creek, and from inadequate flow capacity of the San Joaquin River due to sediment buildup over time. The February 1969 event flooded over 18,000 acres and caused damages of $1.8 million. Some areas were under 5 feet of water for almost a month. Construction of the Chowchilla Canal Bypass by the State of California partially addressed localized flooding but siltation is limiting bypass effectiveness and flooding is still a problem.

The Board recommends an appropriation of $150,000 to continue this investigation.

II. General Investigations (Preconstruction Engineering and Design)

A. American River Watershed

The Board and the Department of Water Resources acted as the nonfederal sponsor for the Feasibility Study on the American River Watershed which has been completed. This project was not authorized in 1992; however, the Corps was directed to continue work on the critically needed flood control project.

This work will answer the questions that were raised during the authorization hearings. While the study and debate on the type of dam continues, the Sacramento Area still faces one of the most severe threats of flooding in the nation. Resolution of this debate must be resolved expeditiously.

The Board supports the $3,000,000 in the President's Budget.

B. Mid-Valley Area Levee Reconstruction

The project is located within the boundaries of the Sacramento River Flood Control System in Sutter and Yolo Counties in north-central California. The area includes the Sacramento River, Knights Landing Ridge Cut, and Sutter Bypass and the communities of Knights Landing and Robbins. An evaluation of about 240 miles of the Sacramento River Flood Control Project levees in the Mid-Valley area identified about 20 miles of levees that are structurally deficient. The project includes reconstructing about 10 miles of these levees by installing landside berms with toe drains, relocation of ditches, embankment modifications, slurry cut-off walls, the restoration of levee height and developing land for fish and wildlife mitigation.

The Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction currently scheduled for June 1996

The Board recommends an appropriation of $500,000 to continue Preconstruction Engineering and Design.

C. Lower Sacramento Area Levee Reconstruction

The project is located within the boundaries of the Sacramento River Flood Control System in Sacramento County in north-central California. The area includes the lower Sacramento River and its distributary sloughs and the town of Clarksburg. An evaluation of about 295 miles of the Sacramento River Flood Control Project levees in the Lower Sacramento area identified about 47 miles of levees that are structurally deficient. The project includes reconstructing about 2 miles of these levees by installing landside berms with toe drains, embankment modifications, the restoration of levee height and developing land for fish and wildlife mitigation.

The Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction currently scheduled for June 1996.

The Board recommends an appropriation of $500,000 to continue Preliminary Engineering and Design.

D. Kaweah River

The study is to evaluate the feasibility to provide additional storage at Lake Kaweah (Terminus Dam) for increased flood protection.

The Board recommends $500,000 to continue Preconstruction Engineering and design.

E. Tule River (Success Reservoir)

The Corps completed an interim feasibility report in 1992 for the enlargement of the Success Dam and Reservoir spillway on the Tule River. There is presently an unresolved issue on seismic stability. This issue is being investigated by the Corps of Engineers under O&M Appropriations.

The Board supports the $700,000 in the President's Budget to finish the seismic study.

III. Construction Projects

A. Marysville/Yuba City Levee Reconstruction

The Sacramento River Flood Control Project was authorized in 1917 and modified by various Flood Control and/or River Harbor Acts in 1928, 1937, and 1941.

This program would allow reconstruction of 44 miles of the 134 miles of levees which protect the Marysville/Yuba City area. The program will be cost shared with a number of local agencies. After execution of a Project Cooperation Agreement in 1993, the first of three construction contracts is scheduled to start in 1994.

The Board supports the $6,000,000 in the President's Budget.

B. Merced County Streams

This project, authorized in 1970, will provide flood protection for Castle Air Force Base, the City of Merced, and adjacent suburban and agricultural lands. Castle Dam has been completed. The construction began in the spring of 1991 and the 1994 funding will finish the check structure in the Main Canal which will complete Phase 1 of the project.

The Board supports the $699,000 in the President's Budget.

C. Sacramento River Bank Protection

The project, authorized in 1960, is a long-range federal-State effort, aimed at preserving the existing project levee system of the Sacramento River. These existing levees offer flood protection along 192 miles of the Sacramento River between Collinsville (in the Delta) and Chico Landing. The Sacramento River Bank Protection Project work consists of providing some form of bank stabilization at those points which are identified each year as the most critical.

The Board, as the nonfederal sponsor, supports the $3,000,000 in the President's Budget.

D. Sacramento River Flood Control

This project was authorized in 1917 and modified by various Flood Control and/or River Harbor Acts in 1928, 1937, and 1941. The project comprises a comprehensive system of levees, overflow weirs, drainage pumping plants, and flood bypass channels, extending along the Sacramento River from Collinsville to Chico Landing.

The Board supports the $100,000 in the President's Budget.

E. Sacramento River at Glenn-Colusa Irrigation District

This project involves restoration of the hydraulic characteristics of the main channel of the Sacramento River. The Corps is conducting the engineering and design of works to restore the elevation of the Sacramento River in the vicinity of the Glenn-Colusa Irrigation District intake to conditions existing prior to the flood of 1970.

The Board recommends $300,000 for additional technical and environmental coordination activities.

F. Sacramento Urban Area Levee Reconstruction (Floodwall)

This is a part of 110 miles of levee that protect the City of Sacramento that was constructed over the last few years. There is a short stretch of levee along the Sacramento River adjacent to downtown Sacramento which has a "Floodwall" on the water side. This "Floodwall" has been determined to be unsafe; however, it was not fixed when the other deficiencies were taken care of as part of this authorization.

The Board supports the $1,870,000 in the President's Budget to continue construction.

G. Upper Sacramento River Demonstration Project - Golden State Island

The congressional direction for the reconnaissance study being done under the Upper Sacramento Fish and Wildlife Habitat restructuring focussed on environmental restoration rather than an integrated flood plan. While we still believe flood control is an integral part of necessary studies, we do support the results of the reconnaissance study.

Based upon the contents of the site-specific, single-purpose reconnaissance study, we believe that an environmental restoration project in accordance with Section 1135 of the Water Resources Development Act of 1986 is an appropriate action to consider.

It is recommended that a demonstration project for river restoration in accordance with Section 1135 of WRDA 1986 be developed on the upper Sacramento River. Golden State Island site has been selected from the present reconnaissance study. State funding may be available providing the 1135 project is a restoration effort related to the Sacramento River Flood Control Project.

The Board recommends $500,000 for this project.

H. China Island Environmental Restoration

As an outgrowth of the reconnaissance report on the San Joaquin River Mainstem study, it is strongly urged that a separate environmental restoration project be developed substantially consistent with the Section 1135 of WRDA 1986 program. The locally preferred restoration site is known as China Island and would involve restoring historic wetlands and riparian habitat on about 3,300 acres of land southwest of the San Joaquin River above its confluence with the Merced River.

The restoration would include conversion of levelled agricultural fields and degraded floodplains, dry channels, and riparian corridors. The plan would include the creation of 600 acres of seasonal and semi-permanent wetlands, 800 acres to grow waterfowl food crops and provide nesting cover, and 1,900 acres of seasonally flooded and semi-permanent wetlands with continually flooded riparian corridors. The property is in State ownership.

The Board recommends $500,000 for this project.

I. West Sacramento

The Board is also the nonfederal sponsor for the West Sacramento flood control project which was authorized for construction by the Water Resources Development Act of 1992.

The Board supports the $7,000,000 in the President's Budget to continue the construction of this needed flood control project.

J. Yolo Basin Wetlands

The project area is located within the boundaries of the Yolo Bypass which is an operative feature of the Sacramento River Flood Control Project. The Yolo Bypass extends 43 miles from Fremont Weir on the Sacramento River, south to the town of Rio Vista where it rejoins the river. The Putah Creek Sinks Site contains 3,000 acres which will be converted into 2,323 acres of seasonal wetland, 464 acres of grassland/upland, 28 acres of riparian woodland, and 185 acres of permanent wetland. The Yolo Causeway Site contains 200 acres which will be converted into a combination of grassland/upland, riparian woodland, and permanent wetland.

The project was initiated in Fiscal Year 1991 with funds added to the Fiscal Year 1991 Appropriations Act by Congress. Plans and specifications for the site will be completed in April 1994, and construction award is scheduled for August 1994.

The Board supports the $720,000 in the President's Budget.

Glenn County Public Works Department

777 North Colusa Street
WILLOWS, CALIFORNIA 95988-2298
Telephone (916) 934-6530 From Orland (916) 865-2782 FAX (916) 934-6533

Roads and Bridges
Transportation
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Surveyor / Engineer
Willows Airport
Orland Airport
Solid Waste Landfill

Flood Control
Stream Cleaning
Water Resources
Street Lighting
North Willows CSA
Storm Drain Maint. Dist. #3

THOMAS J. TINSLEY
Public Works Director

March 24, 1995

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Dear Congressman Myers;

On behalf of the citizens of Glenn County, I am writing to urge your committee's support for a project of great concern to our area.

The Sacramento River forms the eastern boundary of Glenn County for approximately 30 miles, the lower 8 miles of which is included in the Corps of Engineers levee project. The severity of the floods that have occurred this winter has increased the concern of area landowners and residents of the town of Hamilton City about the safety and reliability of the existing privately maintained levees north of the Corps facilities.

For this reason, there is strong local support for the formation of districts to upgrade and maintain the levees to Corps standards. We cannot do this alone and for this reason we are requesting your support for the first phase of a project to bring the levees in the northern part of our County up to the standards established in the southern area. This project is the Hamilton City/Tehama study, which if implemented would result in the extension of the Corps-maintained levees north to the town of Tehama in Tehama County to our north. Both the towns of Hamilton City and Tehama experienced serious flood damage in the latest storms and only the dedicated efforts of local residents and emergency personnel saved these areas from disaster, and the possible loss of life and property. In addition, Glenn County and local landowners have suffered serious damage to public facilities and crop losses from a levee break on County Road 29 that has failed twice since the first of the year. This break alone will cost several million dollars to repair and future damage would be averted by a well designed system of levees and bank protection

We recognize the need for local participation in such projects and for this reason the County of Glenn has agreed to act as a local sponsor for the project pending the formation of the appropriate levee districts.

Finally we want to express our appreciation to our Congressman Vic Fazio, for his support of this worthwhile project.

Again we respectfully request your serious consideration and financial support for this badly needed flood control facility.

Respectfully submitted,

Thomas J Tinsley

Thomas J. Tinsley
Public Works Director

Anderson Orchard Services
P.O. Box 187 • 470 Canal Street
Hamilton City, CA 95951
916/826-3669

March 23, 1995

U. S. House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Dear Congressman Myers,

I would like to introduce myself, Don Anderson, landowner and President of Sacramento Valley Landowners Association, a non-profit organization of land owners along the Sacramento River and its tributaries. The primary concern of our organization is protection from river bank erosion and seepage which each year causes millions of dollars damage to public and private property in the Sacramento River area from Tehama to Ord Bend. We come before you today for funding for the repair of the J Levee near Hamilton City, County Road 29 at Ord Bend, and Tehema Levee town of Tehema. We want to acknowledge the support of our Congressman Vic Fazio as well as the Board of Supervisors of Glenn County and the Glenn County Public Works Director. Please help with sufficient funding to protect these three areas and towns from the threat of millions of dollars of damage.

Respectfully submitted,

Don Anderson

Don Anderson
Concerned Landowner

WEDNESDAY, MARCH 29, 1995.

SACRAMENTO RIVER, GCID, RIFFLE RESTORATION

HAMILTON CITY PUMPING PLANT FISH FACILITIES

WITNESSES

DONALD BRANSFORD, PRESIDENT OF THE BOARD, GLENN-COLUSA IRRIGATION DISTRICT

ROGER GWINN, WASHINGTON D.C. REPRESENTATIVE, GLENN-COLUSA IRRIGATION DISTRICT

GAYE LOPEZ, CONSULTANT, GLENN-COLUSA IRRIGATION DISTRICT

Ms. TENNIS. I know you will appreciate that we have asked our members to keep their remarks very short.

We will go to item No. 4, Glenn-Colusa Irrigation District, Donald Bransford, President of the Board.

Mr. BRANSFORD. I am Don Bransford. I am a farmer from Colusa County and President of the Board at Glenn-Colusa Irrigation District.

The agricultural activity supported by the district helps sustain an estimated 12,000 jobs in the region and generates $255 million in economic activity per year. The district is also the sole source of surface water for three wildlife refuges, covering 20,000 acres in the heart of the Sacramento Valley.

I request that you provide $3 million for the Bureau of Reclamation in fiscal year 1996 to complete the design and engineering work and to initiate construction on a permanent new fish screen.

The district requests the committee support of an appropriation of $300,000 to the Corps of Engineers to continue work on the Sacramento River Gradient Restoration Project. The project will improve the effectiveness of the existing fish screen as well as any new fish screens at the GCID diversion.

Finally, the district requests the subcommittee earmark funds to initiate design and feasibility studies from funds made available in the bill through the Central Valley Project Restoration Fund to enable the district to make year-round water deliveries to the three national wildlife refuges in the district service area.

Thank you.

Mr. RIGGS. Let me ask, since I know we will be using initials, what does GCID stand for.

Mr. BRANSFORD. Glenn-Colusa Irrigation District.

[The statement of Mr. Bransford follows:]

GLENN-COLUSA
IRRIGATION DISTRICT

WATER RIGHTS SINCE 1883

MEMBER ASSOCIATION OF CALIFORNIA WATER AGENCIES

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**United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman**

**Statement of Mr. Donald Bransford
President
Glenn-Colusa Irrigation District
March 29, 1995**

Mr. Chairman, Members of the Subcommittee, my name is Don Bransford. I am a rice farmer from Colusa County, California, and I am President of the Board of Directors of the Glenn-Colusa Irrigation District (GCID).

I appreciate the opportunity to testify before you this morning regarding the federal funding priorities for GCID, and I appreciate the Subcommittee's past efforts to address our concerns.

GCID is the largest and one of the oldest diverters of water from the Sacramento River. The District delivers water to approximately 1,200 families who have about 141,000 acres of land in cultivation in Glenn and Colusa Counties.

The agricultural activities supported by the District help sustain an estimated 12,000 jobs in the region and generate $255,000,000 in economic activity per year.

The District is also the sole source of surface water for three wildlife refuges -- the Sacramento, Delevan and Colusa National Wildlife Refuges -- that cover some 20,000 acres in the heart of the Sacramento Valley.

GCID has responded to new environmental requirements and to successive years of drought with stringent, but highly successful conservation practices and the implementation of a voluntary groundwater well program.

Serving over 170,000 acres in Glenn and Colusa counties.

CAMERA COPY

The District is also firmly committed to obtaining lasting protection of the winter-run salmon and other fishery resources at the Hamilton City Pumping Plant.

Over the last several years, the District has invested over $2,000,000 on the construction of an interim flat-plate fish screen and other improvements to provide immediate protection to the endangered winter-run chinook salmon and other fish species.

While the new flat-plate screen, installed in late 1993, has been very effective, it is only an interim solution. Permanent protection is needed. Without a new permanent fish screen, the District will continue to face pumping restrictions that will hold water deliveries by the District to just 65 percent of the District's full entitlement.

And, unlike some other projects authorized in the Central Valley Project Improvement Act, the availability of non-federal cost-sharing is not in doubt. The District has set aside $4,000,000 to date to help pay for the non-federal, 25 percent cost-share of a new permanent fish screen. By the end of the year, the District will have added another $2,000,000 to the existing funds, for a total of $6,000,000. We are ready and able to cost share any federal funds provided by this Committee.

On behalf of GCID, the fishery and all of those whose economic fate is tied to the recovery of the winter run salmon, I respectfully request that you provide **$3,000,000 for the Bureau of Reclamation in fiscal year 1996 to advance work on a permanent new fish screen at the Hamilton City Pumping Plant**. Specifically, an allocation of $3,000,000 is needed to complete the design and engineering work and initiate construction on this important project.

Without such a commitment of funds, construction will be delayed. That will mean less water for the farmers, a less speedy recovery of the fishery and less revenue for the federal Treasury, all because of reduced water deliveries. Failure to provide the funds necessary to advance the project represents a lose-lose-lose proposition. It is bad for the taxpayers, it is bad for the farmers and it is bad for the fishery resource. Again, I urge you to provide an allocation of $3,000,000 to keep the project moving forward on an optimum schedule.

For the **U.S. Army Corps of Engineers, GCID requests the Committee's support of an appropriation of $300,000 to the Corps of Engineers to continue work on the Sacramento River gradient or riffle restoration project.** Construction of a gradient restoration project will improve the safe passage of winter run chinook salmon and other fish in that reach of the Sacramento River by stabilizing the river elevation. This will improve the effectiveness of the existing fish screen as well as any new and/or enhanced fish screen at the GCID diversion.

Finally, Mr. Chairman, GCID requests that the Subcommittee provide adequate funding to **initiate design and feasibility studies to construct a siphon across Stony Creek and upgrade the GCID canal facilities, from within the funds made available in the bill through the Central Valley Project Restoration Fund.** This project will enable the District to make year-round water deliveries to the three National Wildlife Refuges in the GCID service territory as well as enable year-round water deliveries to other users in the District. These proposed upgrades will allow GCID to better serve the refuges and at the same time better serve our existing agricultural customers. This is the kind of win-win project that should be promoted.

Mr. Chairman, Members of the Subcommittee, on behalf of GCID, I would like to express my appreciation for your past support of our efforts to address the fish bypass problem at the Hamilton City Pumping Plant, and I respectfully request your support once again in the fiscal year 1996 Energy and Water Development Appropriations Act.

Thank you for your consideration.

WEDNESDAY, MARCH 29, 1995.

AMERICAN RIVER WATERSHED PROGRAM

SOUTH SACRAMENTO COUNTY STREAMS

SACRAMENTO URBAN LEVEE RECONSTRUCTION

MAGPIE CREEK

WITNESS

PAUL DEVEREUX, DIRECTOR OF ENGINEERING, SACRAMENTO AREA FLOOD CONTROL AGENCY

Ms. TENNIS. Our next speaker will be Paul Devereux, Director of Engineering from the Sacramento Area Flood Control Agency.

Mr. RIGGS. I have number three——

Ms. TENNIS. Statement submitted.

Mr. DEVEREUX. I am Paul Devereux, representing the Sacramento Area Flood Control Agency. I would like to thank the committee's past support of our efforts to bring flood protection to California's capital city.

We have some 400,000 people and $38 billion worth of property at risk in the American River Floodplain, with a Corps of Engineers estimate of approximately $9 billion in damage that could occur during a 100-year flood if we were to lose our levee system.

I think our flood risk was further reinforced by the flooding that we had in January and March of this year in which a number of people were displaced and several lives lost.

My testimony is in support of several projects, including the American River, the South Sacramento Stream Group, the Small Project 205 Authority and the Sacramento River Bank Protection.

Thank you.

[The statement of Mr. Devereux follows:]

SAFCA
Sacramento
Area Flood
Control
Agency

Testimony
of

SACRAMENTO AREA FLOOD CONTROL AGENCY

SACRAMENTO, CALIFORNIA
MARCH 29, 1995

BEFORE

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

THE HONORABLE JOHN MYERS, CHAIRMAN

IN

SUPPORT OF APPROPRIATIONS
FOR

AMERICAN RIVER PROJECT–PRECONSTRUCTION, ENGINEERING AND DESIGN

SOUTH SACRAMENTO COUNTY STREAMS–FEASIBILITY

MAGPIE CREEK UNDER SECTION 205 SMALL PROJECTS–PRECONSTRUCTION, ENGINEERING, AND DESIGN

SACRAMENTO RIVER BANK PROTECTION PROJECT (AMERICAN RIVER LEVEES)–CONTINUED STUDIES

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Dear Mr. Chairman and Members of the Subcommittee:

My name is Paul Devereux, Director of Engineering of the Sacramento Area Flood Control Agency (SAFCA). I am here today representing the SAFCA Board of Directors as well as the City of Sacramento, County of Sacramento, County of Sutter, Reclamation District 1000 and the American River Flood Control District. I am also here representing over 400,000 Sacramentans who live in the floodplain of the two major rivers draining much of Northern California–the Sacramento and American Rivers. Together we are soliciting the continued support of this Subcommittee to solve our region's most critical infrastructure problem–adequate flood protection. The recent floods which devastated many areas in Sacramento have further reinforced our vulnerability.

First of all, I would like to thank the Chairman and Subcommittee members for their past support of our efforts to protect the citizens and properties of the greater Sacramento urban area. I also urge your Subcommittee to maintain Federal support for flood control and oppose efforts by the Administration to significantly reduce the Federal role. This policy is ill conceived and short-sighted. The savings in the short term will result in greater expenditures from the Federal Treasury over time in disaster assistance and result in significant adverse impacts on the national economy. One should not measure "national significance" by the origination of flood waters; but rather their destination and impacts on the nation. The floods throughout California in January and March of 1995 have highlighted this distinction.

SAFCA supports the continued funding for the following projects:

1. **American River Project**–$3 million for continued Pre-construction, Engineering, and Design to address the most serious flood risk to Sacramento with over 400,000 residents and $38 billion of property in the floodplain.

2. **South Sacramento Stream Group**–$500,000 for continued a Feasibility Study to address flood risks in South Sacramento where flooding occurred during January 1995.

3. **Magpie Creek (Section 205 Small Project)**–Continued funding for Section 205 Projects to complete Pre-Construction, Engineering and Design.

4. **Sacramento River Bank Protection**–Continued funding to study and address serious bank erosion adjacent to the American River levees through urban Sacramento.

On behalf of the Sacramento community, we urge your support in funding our efforts to solve the flood risk facing Sacramento now, rather than after we become another multi-billion dollar disaster looking to Washington for assistance.

BACKGROUND

On January 9, 1995, the rain began to fall over the greater Sacramento area. By early morning, small creeks had become raging rivers spilling over their banks into neighborhoods and homes. Within hours, many areas in Sacramento had become lakes sparking dramatic rescues, flooding major roads, closing schools and businesses, disrupting rail service, and generally sending the community into shock. Memories of the previous floods of 1986 were re-kindled in the minds of those facing the loss of their homes and belongings; for the second time in less than nine years Sacramento was experiencing flows at or above the 100-year flood elevation in many creeks. Fortunately for our region, the recent drought had depleted our major reservoirs leaving ample space to catch the runoff thereby avoiding the more serious and life threatening flooding resulting from a potential American River levee failure.

However, as the rains have continued through January and in March, our reservoirs are now full. Major flood releases, not seen since the great floods of 1986, have begun in order to maintain flood space for new storms continuing to roll in from the Pacific. Our major rivers are now flowing full, the by-pass system which is the safety valve along the Sacramento River is carrying large flows. If not for the existing flood control system, Sacramento would have been inundated by flood waters with billions of dollars in damage and potentially many lives lost.

With this scenario, it is disheartening and frightening to hear the Administration's proposal to reduce, and in Sacramento's case, eliminate Federal participation in basic flood protection. The proposed policy says the federal government will participate only in projects of national significance which is measured by how much water originates in another state. This would leave out all projects in Sacramento since our rivers originate and end within California's vast borders. Yet when the floods of 1995 rolled through our State, there was significant national interest and impacts including; 1) a Presidential visit to tour the damages; 2) multi-million dollars in federal disaster relief; 3) lost crops and flooded farm lands which will impact the nation's food market in the coming months; 4) disruption to transportation, including the interstate highway system and major rail lines carrying goods from California's port cities; and lastly, 5) the loss of innocent lives and significant property damage. Each of these impacts affect the whole nation, yet the floodwaters all originated within our State. "National significance" should not be measured by the cause of the flood but its effect.

The SAFCA Board has unanimously adopted a Resolution opposing the proposed changes in the Federal Flood Control Policy. The Sacramento community has consistently maintained an historic objective to provide a high level of flood protection commensurate with the risk to life and property in our quick reacting watershed. The Federal government has played a critical role in the establishment of the Sacramento River Flood Control System and we are urging continued support for Federal participation in that system to protect the lives and properties of this community.

Following the disaster and suffering experienced during the Midwest Floods of 1993, there are those who call for the Federal government to abandon traditional flood control efforts in favor of non-structural solutions including allowing rivers to reclaim their natural floodplain. This is a commendable recommendation and should be implemented where feasible. However, there are some areas, such as Sacramento, where such policies are infeasible and impractical. Sacramento began as a river town close to the banks of the streams which provided a source of water to live and a convenient transportation corridor. Today, the region has grown to a population in excess of one million. Of those, over one-third (400,000) live in the Sacramento and American River floodplain. Property value has been placed at $38 billion. The floodplain includes the commercial heart of the City as well as the State Capitol Complex. To physically move a population and infrastructure of this magnitude is economically and socially infeasible. For Sacramento, we must continue to invest in flood control infrastructure to address our critical flood risk.

At this time we are testifying in support of the President's FY 1996 budget for the following flood control projects in Sacramento:

1. AMERICAN RIVER PROJECT

SAFCA supports the President's budget of $3 million for continuation of Pre-construction, Engineering and Design (PED) on the American River Project.

When Folsom Dam was constructed along the American River in the 1950's, it was designed to provide Sacramento a very high level of flood protection (excess of 250-year protection). Over time, the level of protection provided by the reservoir and downstream levees has been continually downgraded as larger than anticipated flood events have descended on the valley. Finally, after the 1986 flood, the Corps of Engineers have determined that Sacramento has only a 63-year level of flood protection; a far cry from the high level deemed appropriate and thought obtained in 1955 and significantly less than other similarly situated major urban areas around the nation including St. Louis, Kansas City, Dallas, Omaha, Minneapolis, Portland, Pittsburgh, or Orange County.

Following Congress' decision not to authorize the American River Selected Plan in 1992, the Corps of Engineers, as directed by Congress, has been re-analyzing all alternatives for flood control along the American River. In support of the Corps, SAFCA has spent in excess of $1.5 million of local funds over the past two years on engineering and environmental studies to supplement the Corps efforts and has participated in the Corps' study management team to direct the complex technical and political efforts needed to reach consensus for a flood control project on the American River.

The process is on schedule for bringing the project to Congress for action as part of the 1996 Water Resources Development Act. An Alternatives Report was produced by the Corps during FY 1995. At this time, SAFCA and the State Reclamation Board have requested the Corps continue to study two alternative projects. The $3 million budgeted for FY 1996 is essential for the Corps to produce a Supplemental Information Report and Environmental Impact Statement for the American River Project so it can be brought to

Congress in 1996 for authorization. We strongly support the President's 1996 budget of $3 million for PED on the American River Project and urge your mutual support.

2. SOUTH SACRAMENTO COUNTY STREAMS

SAFCA supports the President's budget of $500,000 for continuation of a Feasibility Study for a flood control project on the South Sacramento County Stream Group including Morrison, Laguna, Unionhouse, and Elder Creeks.

We thank this Subcommittee's past funding support for a Reconnaissance Study on flooding problems along these major tributary streams south of the American River feeding into the Sacramento-San Joaquin Delta. The Reconnaissance Study concluded there is a significant flood risk and yielded a very cost effective flood control project. The flood danger indicated in the study was confirmed by the recent rains in January 1995. Over 300 homes in South Sacramento were flooded as the swollen creeks could not accommodate the local runoff from nearby subdivisions. The water reached to within a few feet of existing levee tops along the entire system and in some places overtopped spilling water into streets and subdivisions. Once again, worse flooding was averted because the major river systems downstream were not at flood stage, thus allowing the flood swollen creeks to drain.

The SAFCA Board has approved participation as the cost sharing, non-federal sponsor for the Feasibility Study. In addition, to address the serious public safety risk, SAFCA may also begin construction on the most critical features of the project early using local funds and request future credit should a project ultimately be authorized and construction appropriations approved.

3. MAGPIE CREEK (SECTION 205 SMALL PROJECT)

SAFCA supports the continued funding of the Section 205 Small Projects Program. The City of Sacramento and American River Flood Control District which are parent entities to SAFCA have been cost sharing in preparation of a Feasibility Study for Magpie Creek in northeastern Sacramento. A Federal flood control project was built in the 1950's because of the flooding problem. Recent hydrologic studies have shown the system to be inadequate for even a 100-year flood. The recently completed Feasibility study identified a cost effective project which can provide a high level of flood protection to properties both on McClellan Air Force Base and downstream. The recommended project includes channel improvements on McClellan Air Force Base extending westerly through the City of Sacramento. The Air Force will fund those improvements on the Base. We are anticipating Section 205 funds for construction of downstream improvements. The locals are poised to commence relocation and right-of-way acquisition to expedite the project and reduce the flood risk to their residents in the floodplain.

4. SACRAMENTO RIVER BANK PROTECTION (LOWER AMERICAN RIVER LEVEES)

SAFCA supports continued efforts by the Corps to address bank erosion which threatens the primary levees along the Sacramento River Flood Control System. In particular, several sites have been identified along the American River below Folsom Dam where continued erosion of the banks could begin to affect the integrity of the adjacent levees as well as destroy valuable habitat. These 26 miles of levees flanking the American River Parkway through the heart of Sacramento are the difference between flood protection and catastrophe. In addition, the Parkway has become a valuable asset to our community. The natural environmental values and recreational opportunities provided by the Parkway in such close proximity to the Sacramento urban area are rarely rivaled across the nation.

SAFCA and the State of California have convened a Lower American River Task Force of interested stakeholders including flood control and resource agencies, environmental groups, business leaders and neighborhood groups to address the problem. The Task Force has succeeded in developing a planning framework within which to carry out bank protection improvements covering about 13,500 lineal feet along some of the most critical reaches of the lower American River. The bank protection would be funded under the existing authorized Sacramento River Bank Protection Project with local cost sharing by SAFCA.

SAFCA supports the continued funding of this Project so the critical sites identified by the Task Force can be fixed in a timely manner before the next major flood on the American River threatens the levee system.

Also, SAFCA appreciates the efforts of this Subcommittee in funding the efforts to date to fix the Sacramento Riverwall under the authorized Sacramento Urban Area Levee Reconstruction Project. The Corps is completing its final design and anticipates construction to commence in 1995 and be completed in 1996. This project protects portions of the downtown business district, historic structures in Old Sacramento, Interstate 5, the major north-south transportation route through California, and the State Capitol Complex.

In closing, I would like to say the Sacramento community has pulled together in a responsible manner to address our most critical infrastructure problem–flood protection. We have spent, and will continue to spend local funds to identify and implement responsible flood control projects. However, we need the support of the Federal government to achieve the long term, high level of flood protection (minimum 200-year) appropriate for a heavily populated urban area such as Sacramento with the potential for catastrophic flooding. The flood control issue in California and particularly in Sacramento is of national significance. We request the Subcommittee's continued support in recognition of our communities efforts to resolve the public safety risk. With you help, we can move one step closer to eventually meeting Sacramento's needs for flood protection.

Once again, thank you for your consideration and support.

Mr. RIGGS. Let me ask you quickly, do we have a current damage estimate for flooding in the Sacramento area?

Mr. DEVEREUX. Yes. I think the Corps of Engineers estimate for a flood that overwhelms our system is about $9 billion in property damage. This last winter it has been in the hundreds of millions, but—I don't know if we have an exact estimate, but somewhere around $100 million.

Mr. FAZIO. It may not be over, which is what we really worry about.

WEDNESDAY, MARCH 29, 1995.

STOCKTON METROPOLITAN AREA STUDY

AMERICAN RIVER/FOLSOM SOUTH OPTIMIZATION STUDY

AUBURN-FOLSOM SOUTH UNIT

SOUTH DELTA BARRIERS

WITNESSES

GEORGE BARBER, CHAIRMAN, BOARD OF SUPERVISORS, SAN JOAQUIN COUNTY

ED SIMAS, SUPERVISOR, SAN JOAQUIN COUNTY

JOHN PULVER, WATER RESOURCES COORDINATOR

Ms. TENNIS. Now, George Barber, Chairman of the Board of Supervisors, San Joaquin County.

Mr. BARBER. The County of San Joaquin requests the following appropriations be made for the Corps of Engineers and the Bureau of Reclamation in the amount of $800,000 for the Stockton Metropolitan Area; Auburn-Folsom $2 million; South Delta Barriers, $500,000; the American River Optimization Study, $400,000.

FEMA has recently designated most of the Stockton Metropolitan Area to be in the 100-year floodplain. We are talking about a population of 300,000, the 12th largest city in the State, with about 13 percent unemployment.

We are requesting Congress add $800,000 in a line item to the Corps' budget to allow them to conduct a reconnaissance study to examine the problems. Included in that would be a look at Farmington Dam.

We also want to support the Stockton East Water District in their requests.

Thank you for this opportunity.

Mr. RIGGS. Thank you.

[The statement of Mr. Barber follows:]

STATEMENT TO UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

HONORABLE JOHN MEYERS, Chairman

On behalf of

SAN JOAQUIN COUNTY

and

SAN JOAQUIN COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

March 29, 1995

BOARD OF SUPERVISORS
COUNTY OF SAN JOAQUIN

1941

SUMMARY OF REQUEST

Corps of Engineers - Investigations (Survey)	(Amount)
Stockton Metropolitan Area	$ 800,000
Bureau of Reclamation - Construction Projects	
Auburn-Folsom South Unit	$2,000,000
South Delta Barriers	$ 500,000
Bureau of Reclamation - General Investigations	
American River Folsom South Optimization Study	$ 400,000

Mr. Chairman and Members of the Committee:

My name is George Barber. I am a member of the Board of Supervisors of the County of San Joaquin, California.

San Joaquin County is both a County with highly productive soils devoted to a wide spectrum of agricultural crops, and a rapidly growing metropolitan area. This year the economic future of the region was placed in jeopardy by a recently completed FEMA study. The recent study of the Stockton Metropolitan area concludes that much of the region lies within the 100-year flood plain. The area at risk includes all of the downtown Stockton area and other heavily populated regions of the community. This places a large population, and several hundred million dollars of property at risk from a serious flood hazard. This is a very large problem, and we need the help of the U.S. Army Corps of Engineers to solve it. More on that in a minute.

At the other extreme, the County has a serious need of additional supplies of surface water. In the eastern portion of our County, which includes the rapidly growing Stockton Metropolitan area, the groundwater resources are critically over-drafted and the basin is subject to salt water intrusion. As a result, we are losing quantities of our valuable groundwater basin each year. This condition will only worsen unless we are able to secure additional supplies of surface water. San Joaquin County has long been directed by the State and Federal planning authorities to look to the American River for this surface water supply. Other alternative water supply sources are now foreclosed to us because of our belief in promises by State and Federal authorities that the County's surface water supply would be available from the American River. Accordingly, we do look to the American River as our primary source of additional water, and seek your support in obtaining it from projects such as the multipurpose Auburn Dam.

Unfortunately, water supply options for the County have been subjected to further attack with the enactment of the Central Valley Project Improvement Act and the operation of reservoirs for the benefit of endangered species. I will give you one all-to-common example of this. After spending over 60 million dollars and years of project planning and construction, a major water supplier to Stockton may not be able to get one drop of water for its newly completed water supply project. The project was built solely to utilize water from the New Melones Reservoir, but due to operational changes required by the Central Valley Project Improvement Act, no additional water may be available. Instead, all the water will go towards environmental purposes at the expense of communities like Stockton and agriculture. This example highlights the importance of obtaining a reliable surface water supply for the County. To this end, we are seeking assistance from the Federal government in the form of the Bureau of Reclamation projects of importance to the County.

The County of San Joaquin requests the following appropriations to be made to the Corps of Engineers and the Bureau of Reclamation for the fiscal year between October 1, 1995, and September 30, 1995, for the projects of concern to the County:

Corps of Engineers - Investigations (Survey)	(Amount)
Stockton Metropolitan Area	$ 800,000
Bureau of Reclamation - Construction Projects	
Auburn-Folsom South Unit	$2,000,000
South Delta Barriers	$ 500,000
Bureau of Reclamation - General Investigations	
American River Folsom South Optimization Study	$ 400,000

DETAILED COMMENTS

Corps of Engineers - Investigations (Survey)

Stockton Metropolitan Area $ 800,000

Earlier I told you that FEMA has recently designated most of the Stockton Metropolitan Area to be within the 100-year flood plain. Several hundred thousand people and several hundred million dollars of property are at risk from devastating floods from the Calaveras River and numerous sloughs and creeks. Most of our levees do not have sufficient freeboard to safely pass the 100-year flood. As you know, even 100-year protection is very low for a large metropolitan area such as Stockton, and now we even lack that. Although we are doing what we can at the local level, we need assistance from the U.S. Army Corps of Engineers to correct the problem. The project is just too big for us to handle. Although we have entered into an agreement with the City of Stockton to attempt to correct the situation, it has become apparent that help from the Corps will be required. We are requesting that Congress add $800.000 and a line item to the Corp's budget to allow them to conduct a reconnaissance study to examine the problem. If the flooding problem cannot be alleviated, the economic impact to the region will be devastating. All development will be seriously impacted and our already depressed economy will worsen.

Included in the Stockton Metropolitan area work, the Corps can also conduct a reconnaissance level study to confirm that the Farmington Dam can be modified to provide long-term storage in conjunction with a flood protection plan.

Bureau of Reclamation - Construction Projects

Auburn-Folsom South Unit	$ 2,000,000

San Joaquin County strongly supports this important project. This study is on schedule to present Congress with the virtues of a multipurpose Auburn Dam. The study is expected to be completed in 1996, at the same time the Corps' inferior "dry dam" American River flood control study is completed. Let me be clear. The County opposes any Corps project which precludes construction of a multipurpose dam at Auburn. The dam site is simply too valuable to be wasted on a project that does not include water supply and other benefits.

San Joaquin County is concerned that the Corps' Auburn area project is not addressing the water needs of the County or other parts of the State as was intended by the original project. There is no question that a multipurpose dam at Auburn would have greatly lessened the effects of the recent drought on fish and wildlife resources and the people of California, as well as provided much needed flood protection to the Sacramento area. Preliminary data completed by the Bureau identified an annual shortfall of water for the study area of nearly 600,000 acre feet in the year 2030, even with water conservation. As a representative of local government I am particularly troubled by this, since these bleak figures have not taken into account Central Valley Project water required to be set aside for environmental purposes under the Central Valley Project Improvement Act, additional demands for wildlife refuges, or operational restrictions due to endangered species.

The people deserve to have the Bureau study a multipurpose dam at Auburn up to the Principles and Guidelines standards, and to produce a new NEPA document, before this option may be foreclosed upon them by the Corps dry dam. This study will accomplish this. The Non-Federal cost sharing partners, including San Joaquin County, continue to fund their share of this important investigation. This will allow you and your colleagues to consider the Bureau's multipurpose study, the Corps' flood control only study, and any other American River studies such as BLM's recreation study and any Wild and Scenic River proposals at the same time. We are convinced that the multipurpose Auburn project will emerge as the best project for the American people.

South Delta Barriers	$ 500,000

This project offers significant water quality benefits to the Sacramento-San Joaquin Delta. It would allow the Bureau to cost share with the South Delta Water Agency and the State Department of Water Resources in the design, construction and operation of salinity barrier facilities in certain South Delta channels. San Joaquin County supports this project in the Fiscal Year 1996 budget.

The budget item would allow the Bureau to continue to fund its fair share along with that of the other partners. To date, the United States Bureau of Reclamation's share of costs should have been approximately $5,500,000; of this, the Bureau of Reclamation has spent only $240,000.

Bureau of Reclamation - General Investigations

American River/Folsom South- Optimization Study $ 400,000

This study is also very important to San Joaquin County. It may provide an opportunity to gain additional urgently needed water for the County. The study is evaluating plans for concurrent surface and groundwater use from existing storage developments and tributary streams to meet the area's water needs and provide suitable instream flows for fishery and recreation purposes. Unfortunately, the project has been delayed, primarily because the Bay-Delta negotiations impacted water supply options for this project. Because of the delay, the President's Budget does not include funding for continuation of this study. An add-on of funds would allow the Bureau to complete this important study. The study has gone far enough that it needs to be completed, or valuable information will be lost. In addition, the add-on could be used to examine the water supply aspects of Farmington Reservoir, as a companion to the Corps' study of physical dam modifications.

As I discussed in my opening remarks, changes in Federal laws have severely impacted water supplies to our County. I used the example of the newly constructed Goodwin Project, which cost over 60 million dollars. This project was rendered virtually useless as a result of the Central Valley Project Improvement Act and the Endangered Species Act. The recent Bay-Delta agreement has not helped the situation. All of the water available for water supply in New Melones Reservoir is now being used to meet endangered species and water quality needs. Despite being paid for by people, including San Joaquin County citizens, none of the water is available for people. Including in this year's budget the study of using Farmington Dam for water storage as part of the Goodwin Project may help to lessen the impact of the existing situation. The unusable water supply project previously mentioned passes right through the Farmington Project. Farmington is currently used solely for flood control purposes, but we think it can do more. We believe modifications to Farmington Dam to store water may yield water supply and environmental benefits. This project has the added benefit that a dam already exists. Therefore, San Joaquin County requests that an add-on in the amount of $400,000 be approved.

WEDNESDAY, MARCH 29, 1995.

STOCKTON METROPOLITAN AREA STUDY

WITNESS

DUANE ISITTI, COUNCIL MEMBER, CITY OF STOCKTON

Ms. TENNIS. Moving to the City of Stockton, Duane Isetti, Council member.

Mr. ISETTI. Thank you, Mr. Chairman and Members of the committee.

As Mr. Barber just illustrated, the City of Stockton has a big problem. FEMA has recently declared, or is about to issue maps to put us in the 100-year floodplain, it would have tremendous economic impact on our communities. Interestingly enough, with all the flooding in California, we are high and dry. Thought I would add that.

We understand the concern of the government and the prevention of such disasters and our need to protect ourselves. As a result of that, we have done something rather unique in government. The city and the county have joined forces, entered into agreements, hired the engineers and we are ready to proceed on spending our own $30 to $40 million on this project.

Our concern is that we want to make sure that it is done right. In this time of fiscal responsibilities when we are tight on where we can give our money, we want to make sure that it is done in a quality fashion. That is why we are asking for help from the Corps. We are looking for $800,000 for a reconnaissance study.

Mr. RIGGS. Okay.

[The statement of Mr. Isetti follows:]

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
HONORABLE JOHN MEYERS, CHAIRMAN

STATEMENT
ON BEHALF OF
THE CITY OF STOCKTON
CALIFORNIA

DATE OF TESTIMONY

MARCH 29, 1995

Mr. Chairman and Members of the Committee:

My name is Duane Isetti. I am a member of the Stockton City Council, from Stockton, in San Joaquin County, California.

My colleague, Mr. Barber, spoke of several projects of importance to the County. I want to emphasize that they are also important to the City and I have brought a more detailed statement on these. I do not need to repeat them to you. However, the City Council did think it was important enough for me to come 2,500 miles to present testimony to you on the proposed Stockton Metropolitan Area Project. As Mr. Barber discussed, FEMA recently completed a study of our region. The study results spell economic disaster for the region unless we can quickly design and construct a flood remediation project. Most of the Stockton Metropolitan area will be within the 100-year floodplain when FEMA issues new floodplain maps early next year. The area at risk includes most of the City of Stockton including all of the downtown area. Now, over 300,000 people live within the 100-year flood plain. In addition, 95,000 properties worth several hundred million dollars are also at risk from this flood hazard.

FEMA has released preliminary Flood Insurance Rate Maps that show flooding of the community from 8 waterways. The FEMA study concluded that the levees along these channels do not have adequate freeboard to provide a 100- year level of protection.

The projected flood hazard in a major metropolitan area such as Stockton greatly concerns me. Considering the vast number of properties at possible risk in the Stockton Metropolitan region, I think you can visualize why community leaders are greatly concerned for our residents. The cost of such a disaster in both human and monetary costs would be enormous. Since the Federal government usually contributes heavily to disaster assistance, prevention of such a disaster is clearly within the Federal interest. That is why we are seeking assistance from the Corps.

The U.S. Army Corps of Engineers are the premier flood control experts in the country. So much so that expertise at the local government level is often limited to reliance on the Corps. I do not want to leave you with the impression that we are not doing anything at the local level. Far from it. Rest assured that the local government agencies are doing what they can to alleviate the problem. The County, the San Joaquin County Flood Control and Conservation District, and the City of Stockton, have entered into a joint agreement to address the flooding issue to the extent possible. The City and County Public Works staff has begun identifying improvements necessary to give the community 100-year flood protection. However, due to the magnitude of the problem and the expertise of the Corps, we are seeking their help in alleviating this potential flooding situation.

We cannot afford to wait. Therefore, we are asking Congress to appropriate $800,000 in the Fiscal Year 1996 Budget to allow the Corps to conduct a reconnaissance study of the Stockton Metropolitan Area. The Corps has the capability of initiating this project during FY 1996, and the sooner we get it going the sooner we can lower the risk of flooding to our residents. The City of Stockton and San Joaquin County are prepared to participate in the cost of a Federal flood control project during future stages of the project.

While the funds requested in the Corps' budget for a reconnaissance study can also be used to study the potential benefit of adding the Farmington Dam as a component of Stockton's flood protection plans, priority should be given to the immediate improvements necessary in the Stockton Metropolitan area.

Mr. Chairman and Members of the Committee:

The City of Stockton supports the following Corps of Engineers and Bureau of Reclamation water, flood control and fishery projects:

1.	Stockton Metropolitan Area Study (Proposed new project) and Farmington Dam Evaluation	$ 800,000
2.	Sacramento/San Joaquin Delta Investigation	$ 800,000
3.	American River Watershed	$ 3,000,000
4.	Auburn-Folsom South Unit	$ 2,000,000
5.	South Delta Barriers	$ 500,000
6.	American River Folsom South Optimization Study	$ 400,000

U.S. CORPS OF ENGINEERS

STOCKTON METROPOLITAN AREA STUDY AND FARMINGTON DAM EVALUATION $ 800,000

The Stockton Metropolitan Area Study is a proposed new project. The Federal Emergency Management Agency (FEMA) has recently completed a study of the Stockton Metropolitan area. The study concludes that much of the Stockton Metropolitan area does not have protection from a 100-year flood. The affected area includes all of downtown Stockton and the most heavily populated areas of the community. The proposed study would be a General Investigation Survey (Reconnaissance Report)which would take between one and one and one-half years to complete.

Farmington Dam is an existing Corps of Engineers flood control project in San Joaquin and Stanislaus Counties. It is normally dry, but controls flows from the Little John Creek stream group during flood events. The dam has some seepage problems. Assuming the seepage problem can be eliminated, Farmington shows some promise of being able to provide water to Stockton East Water District from its Stanislaus River Project with minimal additional infrastructure.

SACRAMENTO-SAN JOAQUIN DELTA INVESTIGATION $ 800,000

This important investigation is being conducted jointly with the California Department of Water Resources. The study will examine alternatives to improve flood control, water supply and environmental concerns such as riparian vegetation and water quality in the Delta. This study is of paramount importance in regard to current and future California Water needs.

AMERICAN RIVER WATERSHED $ 3,000,000

At the direction of Congress, studies have been conducted to evaluate expandability and gating aspects of Auburn Dam; re-evaluate other methods of flood control including levee improvements, and study coordinated operational procedures in order to determine if Folsom can be operated differently to provide additional flood protection to Sacramento; and develop criteria to increase the available flood control space in Folsom in conjunction with the Bureau and local interests. The Corps was also specifically directed to study the potential for a reservoir at Deer Creek south of Folsom. This is of particular interest to San Joaquin County as it offers a potential water supply source from the Folsom South Canal.

BUREAU OF RECLAMATION

AUBURN-FOLSOM SOUTH UNIT **$2,000,000**

This project is funded only for maintenance of lands acquired for the Auburn Dam and for miscellaneous personnel support. The City of Stockton is concerned that the project is not addressing the water needs of this area as originally intended. The Bureau should be directed to consider the extension of the Folsom South Canal and the provision for water supply for San Joaquin County. We also recommend that the study include the evaluation of various sized multipurpose projects at the Auburn site. To this end, the City requests that the budget be increased from $2,137,000 to $2,182,000 to support these additional investigations.

SOUTH DELTA BARRIERS **$ 500,000**

Last year the California Water Commission supported a funding add-on request to allow the Bureau to participate with the State in constructing a barrier to improve water quality in the South Delta. The request came from the South Delta Water Agency and was supported by the City. The City continues its support of this project.

AMERICAN RIVER/FOLSOM SOUTH OPTIMIZATION STUDY **$ 400,000**

This study could provide an opportunity to gain additional water for the City's watershed. The study will evaluate plans for concurrent surface and groundwater use from existing storage developments and tributary streams to meet Folsom South Area water needs and provide suitable instream flows for fishery and recreation purposes in the lower American River.

I, FRANCES HONG, do hereby certify as follows:

I am the duly appointed, qualified City Clerk of the City of Stockton, a California municipal corporation; as such City Clerk, I am the custodian of the official records of the City Council of said City. The attached Resolution is a full, true and correct copy of Resolution No. 95-0091 of said City Council, which was adopted by the City Council, on March 6, 1995.

IN WITNESS WHEREOF, I have hereto affixed my hand and the seal of the City of Stockton on March 7, 1995.

FRANCES HONG, CITY CLERK
CITY OF STOCKTON

By ____________________
Deputy

A:\CERT.RESO

Resolution No. 95-0091

STOCKTON CITY COUNCIL

WHEREAS, on March 28, and 29, 1995, appropriate committees of the Congress of the United States will conduct hearings to consider federal appropriations for water, flood control, and fishery projects for Fiscal Year 1996; and

WHEREAS, several projects to be considered at said Congressional hearings will directly impact the City of Stockton and its environs; and

WHEREAS, the expeditious construction of said projects is required to protect the health, welfare and safety of the residents of this area; now, therefore,

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF STOCKTON AS FOLLOWS:

1. That the City of Stockton does hereby support the appropriation by the Congress of the United States of funds for Fiscal Year 1996 for the planning, continuation and completion of flood control and reclamation projects, namely:

   a. Stockton Metropolitan Area Study and Farmington Dam Evaluation

   b. Sacramento-San Joaquin Delta Investigation

   c. American River Watershed

   d. Auburn-Folsom South Unit

   e. South Delta Barriers

   f. American River/Folsom South Optimization Study

CITY ATTY REVIEW

DATE MAR 06 1995

2. That the "Statement by the City of Stockton, California, Before the Committee on Appropriations, Subcommittee on Energy and Water Development of the U. S. Senate"; and the "Statement by the City of Stockton, California Before the Committee on Appropriations Subcommittee on Energy and Water Development of the U. S. House of Representatives" ("STATEMENTS"), are hereby approved as the official STATEMENTS of the City Council. Copies of said documents are attached as Exhibits "A" and "B" respectively, and incorporated by this reference.

3. That the Mayor is hereby directed to forward copies of said STATEMENTS to the appropriate Congressional Committees and to the City of Stockton's representatives in the Senate and House of Representatives, and the City Manager will monitor and initiate proper follow-up communication and correspondence to reflect the City Council's position.

PASSED, APPROVED and ADOPTED MAR -6 1995

/S/ JOAN DARRAH

JOAN DARRAH, Mayor
of the City of Stockton

ATTEST:

/s/ FRANCES HONG

FRANCES HONG, City Clerk
of the City of Stockton

Wednesday, March 29, 1995.

FARMINGTON DAM

AMERICAN RIVER FOLSOM SOUTH OPTIMIZATION STUDY

WITNESSES

EDWARD STEFFANI, GENERAL MANAGER, STOCKTON EAST WATER DISTRICT

JERRY KENNEDY, WASHINGTON D.C. REPRESENTATIVE, STOCKTON EAST WATER DISTRICT

Ms. Tennis. Stockton East Water District Edward Steffani.

Mr. Steffani. I am Edward Steffani, I am the General Manager of the Stockton East Water District who supplies water to the Stockton urban area, and to the 300,000 people. We also supply water to 65,000-acres of irrigated farmland.

You have heard earlier from Congressman Pombo about this horrible thing that has happened to Stockton East. I heard Congressman Thomas talk about his people spending a million dollars on the strength of government action.

We in Stockton have spent $65 million building a conveyance system to bring water from the Stanislaus River. The Bureau has refused to make good on that supply. There may be a way for us to salvage part of that system.

Two of the projects before you take advantage of the conveyance system. We are talking about two reservoirs, a new off-stream reservoir that we call South Gulch that could increase water supply, and at the same time, help solve the flood control problems in the city. So we support the city's $800,000 request.

We also ask that you renew last year's funding of $400,000 for the Bureau to study the use of an enlarged existing Farmington Dam that sits on this $65 million conveyance system that we built. If we enlarge the reservoir there is a chance we could bring water across that facility and make use of it for a water supply.

Mr. Fazio. Mr. Chairman, I understand there may be a new attitude toward dealing with this problem at the Bureau and I support that and hope we can help this year.

[The statement of Mr. Steffani follows:]

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Wednesday, March 29, 1995

TESTIMONY
EDWARD M. STEFFANI
GENERAL MANAGER
STOCKTON EAST WATER DISTRICT
STOCKTON, CALIFORNIA

SUMMARY

I am Ed Steffani. I serve as the General Manager of the Stockton East Water District that serves over 300,000 people and provides water to 65,000 acres of irrigated farmland. The District was formed to solve the serious environmental problems of groundwater overdraft and saltwater intrusion in the Stockton area. We built a $23 million treatment plant to reduce these problems by supplying treated surface water. In 1983 we entered into a contract with the Bureau of Reclamation for deliveries of Central Valley Project water from New Melones Reservoir on the Stanislaus River. We joined with the City of Stockton, the County of San Joaquin, and our neighboring water district to provide $65 million to build a conveyance facility. We requested water from the Bureau in 1993, 1994 and again in 1995 and have not received the first drop.

We still face ever increasing problems associated with groundwater overdraft and saltwater intrusion. We need a reliable supply of surface water to combat these problems. Your Committee provided $400,000 for Fiscal Year 1995 for the American River Folsom South Optimization Study. This study is needed to determine the feasibility of wet year storage at South Gulch or Farmington Dam for flood control and conjunctive use. However, we were told by the Bureau of Reclamation that they are not doing the study or spending the funds. We hope that you will again fund this study and direct the Bureau to get it underway.

We join with the City of Stockton in support of a Stockton Metropolitan Area Study for flood control by the Army Corps of Engineers. This $800,000 provides a way to effectively and efficiently manage the water resource while protecting lives and property. A study of the Corps' Farmington Dam will help determine if it feasible to use this facility for wet year storage.

Thank you for your Committee's attention to our problems in the past. I am sure that with your Committee's continued support, we will be able to find, with local level and Federal participation, a reliable water supply for the Stockton area in the future.

The Honorable John Myers, Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives

TESTIMONY OF EDWARD M. STEFFANI
General Manager, Stockton East Water District

My name is Ed Steffani. I serve as the General Manager of the Stockton East Water District in Stockton, California. I am pleased to have the opportunity to testify before this committee concerning Federal funds for projects that are extremely important for our water supply and critical to the long-term survival of our community.

Our efforts to obtain a reliable surface water supply for Stockton and San Joaquin County have faced considerable obstacles. The District joined with our neighbor, the Central San Joaquin Water Conservation District, and with the City of Stockton and the County of San Joaquin to build a conveyance facility for water deliveries from the New Melones Reservoir on the Stanislaus River.

The Districts and local governments provided $65 million in local funds to build a system in reliance on contracts with the U.S. Bureau of Reclamation. These contracts provide for the delivery of much-needed water from the Federal Central Valley Project. We requested deliveries in 1993, 1994 and again in 1995. However, we have not received the first drop of water.

A reliable water supply is absolutely essential to correct the saltwater intrusion and groundwater overdraft problems of our area. The Stockton East Water District was established under California law to implement solutions to these serious environmental problems. The District built a $23 million treatment plant to reduce the overdraft on groundwater by supplying treated surface water. The District provides water for both agricultural and municipal purposes, serving approximately 115,000 acres, 65,000 acres of irrigated farm land, and over 300,000 people.

We continue to seek solutions to groundwater overdraft and saltwater intrusion. However, we are faced with alternatives that include Federal involvement and the wise management of Federally-controlled resources. We believe there are cost-effective approaches that will make surface water available to be conjunctively managed with the existing groundwater resources in the Stockton area.

TESTIMONY OF EDWARD M. STEFFANI
March 29, 1995

Your Committee has been consistent in its support of our efforts. You provided $400,000 in your Fiscal Year 1995 appropriations for the American River Folsom South Optimization Study. We were pleased that the Congress acted to get the Bureau of Reclamation to take a look at this conjunctive use option. However, the Bureau told us by letter that they are not going to do this study and these funds have not been spent for this purpose.

The American River Folsom South Optimization Study still needs to be done to determine the feasibility of wet year storage at South Gulch or Farmington Dam. Responsible management of the water resource needs to include flood control and conjunctive use. This environmentally friendly approach could enhance flood control while providing water to combat saltwater intrusion in the Stockton area.

I join with our Congressman, Richard Pombo, and with the California Water Commission in support of your funding of the American River Folsom South Optimization Study. We hope that you will direct the Bureau of Reclamation to begin this study.

We join with the City of Stockton, along with Congressman Pombo and the California Water Commission, in support of $800,000 for a Stockton Metropolitan Area Study for flood control by the U.S. Army Corps of Engineers. Successful management and stewardship of the water resource can provide solutions to our water supply problems. The Corps operates Farmington Dam that has the potential of conservation storage of up to 160,000 acre feet. However, a study is needed to determine the seepage and whether it is feasible to raise the level of this dam. This conjunctive use should be examined as part of the flood control strategy of the Corps.

We hope that this Committee will act favorably to help the people of the Stockton area help themselves in solving our long-term water problems. Funding these studies is a necessary step in the right direction of bringing about a local-Federal partnership to meet these needs.

WEDNESDAY, MARCH 29, 1995.

MERCED COUNTY STREAMS

WITNESSES

ROSS ROGERS, GENERAL MANAGER, MERCED IRRIGATION DISTRICT
RAY ANDERSON, CONSULTANT, MERCED IRRIGATION DISTRICT

Ms. TENNIS. Ross Rodgers, General Manager, Merced Irrigation district.

Mr. ROGERS. Mr. Chairman, I represent not only the district but other agencies in Merced County that are participating in the Merced Streams Project. The project consists of an authorized construction of two dams and enlargement of a third dam from a earlier project and channel and levee improvements, 25 miles of various downstream creeks. The total estimated cost of the project is $125 million.

The project when completed will ultimately protect over a quarter of a million people and a quarter million acres of some of the best prime agricultural lands in the world, the San Joaquin. The progress on the project, Castle Dam, the first phase of the project was constructed and completed in 1992, and proved its worth this year in January and earlier this month.

Without the dam in place, the City of Merced would have suffered major damage and thousands of acres of rich farmland would have been inundated. The County of Merced ranks number six nationally in the country in farm production and is the most fertile ground in the world.

We would ask for your continued support for this project in the amount of $699,000 as considered in the President's budget.

Thank you.

[The statement of Mr. Rogers follows:]

MERCED COUNTY STREAMS

STATEMENT OF

ROSS ROGERS, GENERAL MANAGER, MERCED IRRIGATION DISTRICT

FOR THE MERCED COUNTY STREAMS PROJECT

MERCED, CALIFORNIA

TO

UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUB-COMMITTEE ON ENERGY AND WATER DEVELOPMENT

THE HONORABLE JOHN MYERS, CHAIRMAN

March 29, 1995

PROJECT:	MERCED COUNTY STREAMS
AGENCY:	MERCED COUNTY, CALIFORNIA
ACTION REQUESTED:	APPROVAL OF $699,000 IN THE 1995-96 BUDGET FOR CONTINUED CONSTRUCTION

Mr. Chairman and Members of the Committee:

My name is Ross Rogers of Merced, California. I am representing the Merced County Board of Supervisors, which, together with the State of California, is the sponsor of the Merced County Streams Project. The County is joined by the Merced Irrigation District, the City of Merced, the El Nido Irrigation District and the LeGrand Athlone Water District.

Federal authorization for the project construction was granted as part of the Supplemental Appropriations Act of 1985. Authorized project facilities include constructing dry dams on Canal (Castle Dam) and Black Rascal Creeks (Haystack Mt. Dam), enlargement of the existing Bear Creek Dam, and modification of levees and channels along more than 25 miles of Fahrens, Black Rascal, Cottonwood, and Bear Creeks. The completed project will provide flood protection worth more than $10,000,000 per year to 263,000 acres of urban and agricultural lands. Total project cost is currently estimated to be $124,500,000, of which $38,600,000, or roughly 31%, will be paid during construction by the local beneficiaries.

When completed, more than 240,000 residents occupying 55,000 housing units within the greater metropolitan Merced area will live with assurance of 125-year flood protection, while the lower rural area will receive 25-year protection.

The first component of the project, Castle Dam, was completed in 1992, and a check structure in the Merced Irrigation District main canal was completed in 1994. This component was constructed under budget, ahead of schedule, and without a lost-time accident. Without Castle Dam during the intense storms of January and

March 1995, the city of Merced would have been partially inundated. We look forward to the transfer of operational responsibility within the next year.

As a result of a request by the County of Merced, the Corps of Engineers has reevaluated project components and will extend the boundaries of the levee and channel portion of the project to better match growth that has taken place in the city of Merced. This willingness to remain flexible throughout the lengthy planning and design process is also a credit to the Corps and its staff.

The Merced County Streams Project is a modification and expansion of an earlier flood control project constructed between 1948 and 1957. It has undergone considerable review and modification since first authorized as part of the Flood Control Act of 1970. Approximately $15,000,000 has been spent to date on the Merced County Streams Project. This has been matched by local contributions of approximately $3,000,000. As partners in financing the construction of this project, we have worked closely with the Corps to establish an economic balance between costs and benefits. As a result of this combined effort, nonessential project components were first scaled back and eventually eliminated. This scaling to fit the economic reality resulted in substantial federal and local savings.

In January of 1993, and also in January and March of 1995, Merced County received rains of heavy intensity. Considerable flooding occurred within the project area. Bear Creek overflowed its banks one mile southwest of Merced, and broke its banks approximately four miles southwest of Merced. Mariposa and Miles Creeks overflowed their banks in various areas southeast of Merced. Quick action by maintenance crews from the Merced Irrigation District, assisted by airmen from

Castle Air Force Base, working around the clock for two days and nights, averted a major disaster in 1993. Castle Air Force Base will be closed later this year, and help from this source will no longer be available.

The project has the support of state and local authorities and funding of the non-federal portion has been addressed.

We request your Committee's support for inclusion of $699,000 in the FY 95/96 budget as recommended by the California Water Commission, the Corps of Engineers, and the President's budget. The allocation of this amount will allow for orderly progress of the Merced County Streams Project, which is so vital to the community, state and the nation.

WEDNESDAY, MARCH 29, 1995.

KAWEAH RIVER BASIN STUDY

KAWEAH RIVER

KAWEAH RIVER DELTA CORRIDOR ENHANCEMENT PROJECT

WITNESS

JAMES CROOK, MANAGER, KAWEAH DELTA WATER CONSERVATION DISTRICT

Ms. TENNIS. Next is James Crook from the Kaweah Delta Water Conservation District.

Mr. CROOK. Good morning. I am James Crook, Manager and Watermaster of the Kaweah Delta Water Conservation District in Visalia in the central part of California. I am here on behalf of the conservation district, the City of Visalia, and the County of Tulare, to request the committee provide $300,000 for preconstruction engineering and design of a Corps' project to enlarge Terminus Reservoir on the Kaweah River.

The Corps will finish a feasibility study of this project this year; but because of its new policy regarding flood control projects, the Corps has not requested funding for preconstruction engineering and design for next year. The Corps' policy breaks faith with the local interests. Together with the Federal Government, we locals have committed approximately $3 million to this project, to the feasibility study, and we respectfully request the committee provide $300,000 for preconstruction engineering and design.

The second project we sponsor is a conservation project for environmental enhancement. We would like to express the district's support for dedicating $200,000 in Bureau funds for the Kaweah River Delta Corridor Study.

Thank you.

Mr. RIGGS. Is that a fisheries restoration project?

Mr. CROOK. No, sir, it is a Kaweah River Corridor Environmental Enhancement.

[The statement of Mr. Crook follows:]

KAWEAH DELTA WATER CONSERVATION DISTRICT
2975 Farmersville Blvd. Farmersville, CA
P.O. Box 1247 Visalia, CA 93279
Telephone 209-747-5601
FAX 209-747-1989

TESTIMONY OF MR. JAMES CROOK
MANAGER, KAWEAH DELTA WATER CONSERVATION DISTRICT
CALIFORNIA
BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
WASHINGTON, D. C.
MARCH 29, 1995

Mr. Chairman and Members of the Subcommittee:

My name is James Crook, and I am the Manager of the Kaweah Delta Water Conservation District in the eastern San Joaquin Valley of California. Thank you for the opportunity to present testimony regarding the Fiscal 1996 budget for the U. S. Bureau of Reclamation.

This testimony is submitted in support of the request of the U. S. Bureau of Reclamation for funding related to the Kaweah River Corridor Project in the amount of $200,000. The purpose of this funding is to support annual operation and maintenance costs of the project associated with the attributes specifically related to environmental enhancement.

The Kaweah River Corridor project is located within Tulare County. The project area lies on the east side of the central San Joaquin Valley, just downstream of Terminus Dam. It is located between the St. Johns River on the north and the Kaweah River and its tributaries on the south and extends on the west to the City of Visalia.

This is a continuing project. The Bureau of Reclamation, with the California Water Commission's endorsement, has already provided $1,000,000 to support the project. The State of California has pledged a contribution of approximately $565,000 to pay for land acquisition and revegitation of the project site.

The purpose of the project is to develop, in a single combined project, a long-term solution for groundwater recharge, storm water control and native habitat conservation and restoration along the Kaweah River Delta corridor. Of particular importance is the restoration of Valley Oak riparian forests which are unique in the San Joaquin Valley and a critical important wildlife habitat.

Phase I of the project, a site feasibility study funded by state and local agencies, has been completed. It has identified potential sites for habitat restoration, recharge and flood control improvements.

Phase II, which has just begun, includes engineering, design and implementation of a demonstration program at one of the sites. This part of the project is being funded by the state and the U. S. Bureau of Reclamation. The District has assumed the local sponsorship role related to the project and is proceeding with the completion of the tasks associated with Phase II.

The project is supported by the County of Tulare and the City of Visalia. In addition, fourteen separate state and local agencies have endorsed and/or provided funding for the project.

In order to ensure the long-term success of the project, however, there is a need for an additional commitment from the

Bureau of Reclamation of $200,000 to be funded out of the construction account. These funds will be used to support the on-going costs of the project attributable specifically to environmental enhancement. All other normal operation and maintenance costs will be paid for by the non-Federal project sponsors. The funds made available to the Bureau of Reclamation should be transferred to the National Fish and Wildlife Foundation for this purpose.

Your approval of this appropriation is requested and the District's continued support is offered.

Thank You

WEDNESDAY, MARCH 29, 1995.

TULE RIVER-SUCCESS RESERVOIR

SAN JOAQUIN RIVER BASIN, TULE RIVER BASIN

WITNESS

RICHARD L. SCHAFER, CONSULTING ENGINEER, TULE RIVER ASSOCIATION

Ms. TENNIS. Richard Schafer, Consulting Engineer, Tule River Association.

Mr. SCHAFER. Thank you again for holding this meeting. It is always a pleasure to be here.

As stated, I am Dick Schafer. I serve as Watermaster of the Tule River San Joaquin Basin of California. For eight years we have been working with the Corps for the enlargement of Success Reservoir, Tule River, to increase flood protection for the City of Porterville and downstream agricultural lands.

We request support for the $700,000 in the President's O&M budget for the Corps' completion of the seismic studies of Success Dam and inclusion of $200,000 for continuation of the General Investigation Feasibility Study for the Enlargement of Success Reservoir.

Mr. Chairman, the Federal Government and local interests have invested since 1987, over $3 million in these studies, and irrespective of recent Corps' policy, we believe the Water Resources Development Act of 1986 of the Congress was a commitment with specific rules to the local people for the completion of the Success Reservoir Enlargement Project.

Thank you.

[The statement of Mr. Schafer follows:]

STATEMENT OF THE TULE RIVER ASSOCIATION(1) BEFORE THE UNITED STATES HOUSE OF REPRESENTATIVES COMMITTEE ON APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT THE HONORABLE JOHN MYERS, CHAIRMAN

Mr. Chairman, and members of the Committee,

My name is Dick Schafer, I serve as Secretary of the Tule River Association and Watermaster of the Tule River. I am appearing in support of appropriations for the U. S. Army Corps of Engineers for the completion of funding of the seismic studies of Success Dam and for the continuation of funding of the feasibility study for the enlargement of Success Reservoir, Tule River, California.

The President's FY96 budget includes $700,000 for completion of the seismic studies of Success Dam. These funds are needed to cover costs for additional in situ exploration work at the dam site and for further deformation and static parametric analyses using state-of-the-art computer modeling.

In addition, upon direction of the Chief, USACE, the Corps is now proceeding with the completion of the feasibility study for the enlargement of Success Reservoir and funding of $200,000 is needed for Corps General Investigations, San Joaquin River Basin, Tule River, California.

The Tule River Association requests that the Committee support the President's budget of $700,000 for the completion of the Success Dam seismic studies and the inclusion of $200,000 for the continuation of the Success Reservoir Enlargement Feasibility Study, Tule River, California, in the 1996 Appropriations Bill.

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(1) Presented by Richard L. Schafer, Secretary, Watermaster
Tule River Association, in Washington D.C.
on March 29, 1995

Success Dam and Reservoir Project, Tule River, California

1. Project Authorization.

Success Dam and Reservoir was authorized for construction by the Flood Control Act of 1944 (Public Law 534, 22 December 1944, Seventy-Eighth Congress, Second Session).

2. Project Description.

Success Dam and Reservoir, a flood control and water conservation project, is located on the Tule River, about 6 miles east and upstream of the City of Porterville, Tulare County, California. The dam was completed 20 January 1961 with a total cost for the project of $14,247,000.

The main dam is a rolled earthfill structure 145 feet high and 3,404 feet long constructed with a central impervious core from the top of dam to the older alluvium. The top elevation of the dam is 691.5 feet and gross pool elevation, crest of spillway, is 652.5 providing 39 feet of freeboard. Success Reservoir gross pool capacity with current sedimentation is 82,300 acre-feet.

3. Seismic Studies.

Previous detailed studies related to the seismic stability of Success Dam include the following:

- Seismic Criteria, Success Dam, Porterville, Tulare County, California (David J. Leeds, September 1980, for the U. S. Army Corps of Engineers, Sacramento District, under contract DACW05-80-P-1078).
- Dynamic Analysis of Success Dam, Success Reservoir, Tule River, California (U.S. Army Corps of Engineers, Sacramento District, June 1983).
- Geologic and Seismologic Investigation, Success and Terminus Dams, Lake Success and Lake Kaweah, Tule and Kaweah Rivers, California (U.S. Army Corps of Engineers, Sacramento District, July 1988).

In review of the 1983 dynamic analysis report by the Corps, as requested by the Tule River Association, it was noted that the uncertainty of deformation of Success Dam was high and the margin of safety believed small which prompted a Technical Review Conference (TRC) on 17 June 1992.

The TRC participants agreed that recent technical advances allow a much better understanding of the seismic response of alluvial soils, present in the foundation of Success Dam, than were available for the 1983 study, and further seismic studies should be conducted.

- A Post-Earthquake Slope Stability Evaluation of Success Dam, Tule River, California was prepared by the U. S. Army Engineers Waterways Experiment Station (CEWES) in June, 1993.

The CEWES report concluded that if the recent alluvium soils of the Tule River channel liquify there would be massive damage that would threaten the integrity of the embankment and extensive slumping of the upstream and downstream (shell) faces of the reservoir could occur. However, if the recent alluvium soils do not liquify and significant excess pore pressures do not develop, then post-earthquake sliding would not occur and the existing dam will likely be safe. The CEWES report stated that the existing field test data was insufficient to demonstrate whether liquification will occur in the foundation soils of Success Dam.

Based on the recommendation of CEWES, in situ testing of the recent alluvium and the foundation soils of Success Dam were conducted under contract of the Corps in early 1994 to obtain crosshole shear wave velocity measurements and Becker Hammer Penetration Tests for evaluation of liquefaction potential of the foundation soils of Success Dam.

- As directed by the congress, the Corps reported to the Subcommittee on Energy and Water Development, Committee on Appropriations by letter dated 18 July 1994. The Information Paper on Current Seismic Studies, Success Dam, Tule River, California stated the results of the Becker Hammer Penetration Testing....

> "suggests that there are isolated lenses of material within the dam and foundation that will either liquify or lose strength under earthquake loading, with resulting deformation of the embankment."

The Paper further stated:

> ..."the presence of liquefaction alone is not considered to result in dam failure. The overall performance of the dam must be examined since the safety of the dam cannot be conclusively evaluated at this time. However, the isolated nature of the weak lenses of

> material make it difficult to predict the overall performance of the dam. Thus, based on the existing data and preliminary analysis available, further study using deformation analysis have been initiated."
>
> "Deformation analysis is a state-of-the-art computer method that estimates earthquake-induced deformations by performing non-linear dynamic effective stress analysis with pore water pressure, strain, and flow deformation response taken into account. In order to complete deformation analysis, significant amounts of site investigation and laboratory testing are required to determine how the soil materials present at Success Dam behave under earthquake loadings."

Due to the requirement of further in situ exploration work at Success Dam in 1995 and as a result of the costs of the extensive and extremely complex state-of-the-art computer modeling required for the seismic studies, the President's 1996 budget includes $700,000 for the Corps completion of seismic studies of Success Dam, Tule River, California.

The Corps has scheduled completion of the seismic studies of Success Dam in 1996

General Stanley G. Genega stated in his letter of July 18, 1994 to the Congress:

> "Based on information obtained from the initial explorations, the Corps estimates that the remaining studies can be completed in May 1996."

4. Feasibility Study

(a.) Purpose

The Purpose of the Tule River Basin Investigation, Success Reservoir Enlargement Project is to improve flood control and water conservation of Tule River flows for the urban area of the City of Porterville and for the downstream agricultural lands within Tulare and Kings Counties, California.

The Success Reservoir Enlargement Project involves the simple raising of the Reservoir spillway 10-feet. Currently there is 39-feet of freeboard from the crest of the spillway to the top of the dam. By raising the spillway 10-feet the storage capacity of Success Reservoir is increased 28,000 acre-feet (82,000 a.f. to

110,000 a.f.) and the flood protection is nearly doubled by providing flood control of a storm event occurring once in 100-years instead of once in 55-years as presently exists.

The Tule River floods of 1966 and 1969, subsequent to completion of Success Dam and Reservoir in 1961, caused estimated damages of $5,000,000 downstream of the Dam with additional flood damages in the Tulare Lakebed in years 1978, 1980, 1982 and 1983.

(b.) Study Area

The study area covers portions of Tulare and Kings Counties, California below Success Reservoir, Tule River containing a gross area of 324,000 acres. Of the gross area 239,900 acres are developed for the production of numerous agricultural crops with the remaining area in urban and non-agricultural uses.

The highly diversification of crops grown in the service area creates gross revenues in excess of $200-million per year.

(c.) Project Feasibility Study

The Tule River Basin Investigation California, Interim Report, prepared by the Corps under the 1988 Feasibility Cost Sharing Agreement (FCSA) was completed in March 1992 and submitted to Washington in June 1992.

The flood control and water conservation project costs, as estimated by the Corps, are $13.5 million including $3.9 million for mitigation of environmental impacts, however with the inclusion of an upstream toe berm for additional seismic protection, as conditioned by the Corps, project costs are increased $9.6 million reducing the benefit to cost ratio from 1.4:1 to 0.9:1. Clearly, without inclusion of costs for seismic correction, there is satisfactory feasibility for federal participation.

Although further work on the Success Reservoir Enlargement Feasibility Study was placed on hold in 1992 for updating the seismic studies of Success Dam, after a meeting with General Williams, Chief USACE, and members of congress on August 16, 1994 and a subsequent meeting with District and SPD Corps Staff on October 17, 1994, the Corps agreed to proceed in calendar year 1995 and FY 1996 under an amendment of the 1988 FCSA with updating and completion of the various tasks of the feasibility study.

A meeting between the local sponsor and the District Corps Staff respecting an amendment of the FCSA was conducted on January 12 and 13, 1995. During that meeting the Corps District staff agreed to obtain clarification of the need for the extensive rewrite of the 1992 Interim Report and particularly the need for risk-based analysis, reformulation of alternative plans of enlargement for selection of a NED plan, additional detailed economic studies, MCACES cost estimate and determination of the environmental impacts downstream of the reservoir.

(d) Funding

It is anticipated that preparation of the amended FCSA will cost approximately $500,000, and although the Corps has agreed to proceed in FY 1995 using other funds, the 1996 budget needs an allocation of $200,000 for the continuation of the Success Reservoir Enlargement Feasibility Study. As stated in General Genega's letter of october 3, 1994, by proceeding in 1995 with the completion of the feasibility study, project authorization could be scheduled in WRDA 1998.

5. Appropriations Committee

The Tule River Association requests that the Subcommittee on Energy and Water support the President's budget of $700,000 for completion of the Success Dam seismic studies and the inclusion of $200,000 for continuation of the Success Reservoir Enlargement Feasibility Study, Tule River, California in the 1996 Appropriations Bill.

WEDNESDAY, MARCH 29, 1995.

CALIENTE CREEK

WITNESSES

MARY K. SHELL, SUPERVISOR, COUNTY OF KERN
DARRELL SORENSON, SPECIAL PROJECTS DATA MANAGER, COUNTY OF KERN

Ms. TENNIS. From Kern County, Mary K. Shell, Supervisor.

Ms. SHELL. Mr. Chairman and Members, I am glad to be here again, and I would like to thank you for past support for our Caliente Creek Flood Control Project.

We are in the first phase of the feasibility study, and I am here to support the second phase and the presidential appropriation or allocation of $171,000. I am here representing the County of Kern, the Kern County Water Agency, Lamont Storm Water District, the City of Arvin.

And I would like to say that Mr. Darrell Sorenson from the Water Agency is with me here.

This study has been going on for a long, long time. After we have had about eight major floods—engineers call them events, I call them floods—since 1932, and they have done about $80 million in damage. They have inundated homes, businesses, our transportation system, our roads and, of course, a lot of farmlands, too.

Most of the people who live in the Lamont area, which has been hit the hardest, are farm workers, and we would like to gain your support for continued funding. We should be finished with the feasibility part of this—the first study fell out because of a cost/benefit analysis failure, so they started again in 1992.

And as Mr. Thomas and Mr. Dooley explained to you, we were one of the first projects in the country to go into a cost-sharing study. To date, we have spent over $3 million, we, I say the Federal Government and local government. Of that, about $900,000 has come from the local folks. So we would urge this—about half my testimony, and I have a written statement, is devoted to our real concern about the Corps of Engineers' plans. I am very relieved to hear what you have had to say today.

In conclusion, I will say that I hope that it might help that I have a Hoosier cabinet that I refinished myself, and it probably went through Alabama to get to California.

[The statement of Ms. Shell follows:]

CALIENTE CREEK FLOOD CONTROL PROJECT

SUMMARY PAGE

MARCH 29, 1995

TO:

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
THE HONORABLE JOHN MYERS, CHAIRMAN

FROM:

KERN COUNTY (CA) SUPERVISOR MARY K. SHELL
REPRESENTING THE COUNTY OF KERN, KERN COUNTY WATER AGENCY, LAMONT STORM WATER DISTRICT AND CITY OF ARVIN.

REQUEST:

SUPPORT FOR PRESIDENT'S PROPOSED FY-96 BUDGET ALLOCATION OF $171,000 TO CONTINUE THE

CALIENTE CREEK FLOOD CONTROL STUDY

AND:

ASK THE SUBCOMMITTEE TO OPPOSE U.S. CORPS OF ENGINEERS'PROPOSED QUALIFYING STANDARDS FOR FLOOD CONTROL PROJECTS.

MARY K. SHELL

County of Kern

Bakersfield, California

March 29, 1995

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Dear Mr. Chairman and Members of this Subcommittee:

I am Mary K. Shell, Supervisor of the Fifth District in Kern County, California. I am here today on behalf of the Kern County Board of Supervisors, Kern County Water Agency, Lamont Storm Water District and the City of Arvin to support the President's proposed FY-96 budget allocation of $171,000 to continue the Caliente Creek Flood Control Study.

The Caliente Stream Group has had eight major flood events since 1932. They have inundated homes, businesses, farmlands and transportation systems and caused in excess of $80 million in damage.

After the last serious flood in 1983, Kern County entered into a feasibility cost sharing study in 1985. Our county was one of the first in the nation to sign a federal cost-sharing agreement for feasibility studies (known as WDRA 1986). When the initial study indicated the project planned would not meet a cost/benefit analysis, a second feasibility study was initiated in 1992.

Some $3 million of a $4.1 million study have been expended so far. Our local taxpayers have contributed about $800,000 of this amount ---- nearly a third.

We are now in the tenth year of study and with your continued support for funding we will be able to complete the study phase in the next couple of years. Then, if found to be feasible, construction of the project can provide a sense of security to the people of Lamont and Arvin, a majority of whom are farm workers.

Truxtun Avenue • Bakersfield, California 93301 • (805)
FAX (805)

However, I would like to express real concern over a U.S. Corps of Engineers budget proposal that could forever doom this project. I'm referring to the new set of financial standards proposed by the Corps for flood control projects. A project like ours absolutely couldn't qualify for assistance under the Corps' suggested requirements that a flood control project:

- Be "nationally significant;"
- Protect only those areas where half the flood waters have crossed state boundaries;
- Provide significant contributions to the national economy; and
- Provide $2 in benefits for every $1 invested.

In addition, the local cost share would be 75%, instead of the current local match of 25%, if we did qualify.

Instead of retreating from local projects, we strongly believe the Corps of Engineers should continue as our nation's primary flood prevention resource. Just a few months ago, a joint partnership agreement was signed by the Corps and the National Association of Flood Storm Management Agencies following a series of Corps workshops aimed at seeking more efficiency in assisting local interests in the civil works process.

It would appear the proposed standards contradict this recent commitment.

We urge the Subcommittee to take a strong position to maintain the Corps of Engineers as our nation's primary flood prevention resource.

Our Kern County Board of Supervisors, Kern County Water Agency, City of Arvin and Lamont Storm Water District were on the cutting edge in forming the cost-sharing partnership with the federal government for the Caliente Creek project and we stand ready to continue that partnership to accomplish our goal of protecting our people from devastating floods.

I appreciate your time and attention.

WEDNESDAY, MARCH 29, 1995.

NAPA RIVER FLOOD CONTROL DISTRICT

WITNESSES

PAUL BATTISTI, CHAIRMAN, NAPA COUNTY FLOOD CONTROL DISTRICT
JAY HULL, COUNTY ADMINISTRATOR, NAPA COUNTY FLOOD CONTROL DISTRICT
BILL BICKELL, DIRECTOR OF PUBLIC WORKS, NAPA COUNTY FLOOD CONTROL DISTRICT
ED SOLOMON, MAYOR, CITY OF NAPA
JED CHRISTINSEN, DIRECTOR OF FINANCE, CITY OF NAPA
TOM FEUTZ, PRESIDENT, NAPA CHAMBER OF COMMERCE
JIM FORD, NAPA CHAMBER OF COMMERCE

Mr. RIGGS. Let me reiterate that all prepared statements will appear in the record. I think it would be helpful to the Members, where the witnesses are aware of whether the President in his proposed budget has recommended funding for these various projects, to note that for the Members of the subcommittee.

If it is agreeable, Ms. Tennis, I would like to introduce the next witness.

Ms. TENNIS. Certainly.

Mr. RIGGS. Prerogative of the Acting Chair.

It is my pleasure to recognize a gentleman who has worked very hard to make a reality the Napa River Flood Control Project, Paul Battisti, the Chairman of the Napa County Board of Supervisors.

Let me recognize Mayor Ed Solomon of the City of Napa.

Supervisor Battisti and Mayor Solomon are also joined by Jim Ford of the Napa Chamber of Commerce; Jay Hull, the County Administrator of the County, Napa County Administrator; Bill Bickell, Director of Public Works; Jed Christinsen, the Director of Finance for the City of Napa; Tom Feutz, current President of the Napa Chamber of Commerce—I haven't seen Tom.

Thank you for yielding to me for purposes of introducing Supervisor Battisti.

Mr. BATTISTI. Thank you, Mr. Chairman. You are very gracious.

I have filed a statement and it justifies for this year $767,000 which is in the President's budget. It also describes a $130 million project which has been in process now for about seven years. Construction is expected to start in 15 months, and assuming that we will all be successful in finding some solution to the policy proposal that has been made, we look forward to that, because we do have a financial plan also in place.

I would like to talk about the history of that for just a very few moments. In the last 50 years, there have been 12 very, very expensive and tragic floods in Napa County. We are now focusing on a 5.4 mile stretch of that which covers downtown Napa, an area which is not very susceptible to moving, as some would say, out of the floodplain.

In 1986, we suffered $100 million damage, three lives were lost and 35 homes, people were left homeless. In 1995, in January and again in March, we suffered serious floods. We are nearing the $100 million mark just for those two floods as well.

There are many more millions that have been spent over the years that has not been counted in terms of the tragedy of suffering and so on. Just to dramatize that, I would like to read one paragraph of a letter I received just before I left for this meeting from Bob Johnston, who is owner of Napa Printing and Graphics:

> One day the sun didn't come up on my business because there wasn't any business. It had washed away in a flood, a flood that could have been prevented. I didn't think I would have to go through the emotional pain of telling my wonderful team of people they didn't have a job anymore, that they couldn't support their families anymore.
>
> I shrunk from looking into their fear-filled, wondering eyes. I didn't think I would have to suffer the nearly $500,000 financial loss. I didn't think I would have to break promises to my oil customers. I didn't think I would have to deal with unsympathetic creditors.
>
> I didn't think I would have to try and squelch the anger that could cause me to be irrational to deal with the depression that could make me nonfunctional, to plead with you to do something that should have been done years before.
>
> I am not asking for compensation. I am asking for prevention. I am tired of the losses that flooding causes our community. Let's not let this happen again.

I say this on behalf of Mr. Johnston, as far as that new policy proposal is concerned.

Mr. RIGGS. Thank you.

For the record, do you know how much damage has occurred in the Napa area to date?

Mr. BATTISTI. Yes. We are estimating the first flood at somewhere in the neighborhood of 40 million, and we are still counting the second flood, but I think it will equal the first flood, the one in March.

Mr. RIGGS. Let me point out that the taxpayer has invested almost $15 million to date over the past six years in the design, engineering and environmental work related to the Napa River Flood Project.

Mr. BATTISTI. Yes, sir.

We thank you for your support of this project and in other areas.

[The statement of Mr. Battisti follows:]

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
THE HONORABLE JOHN MYERS, CHAIRMAN

STATEMENT OF PAUL BATTISTI
NAPA COUNTY CALIFORNIA, SUPERVISOR AND CHAIRMAN
NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
IN SUPPORT OF
APPROPRIATIONS FOR NAPA, CALIFORNIA FLOOD CONTROL PROJECT

MARCH 29, 1995

STATEMENT

SUMMARY

This statement is in support of continued funding for the Corps of Engineers' Napa River, California Flood Control Project, located in the City of Napa, California. The local sponsoring agency is the Napa County Flood Control and Water Conservation District. The City of Napa is the recreation sponsor.

The subcommittee is asked to support a federal budgetary appropriation of $787,000 for this project in Fiscal Year 1996, and is included in the President's 1996 budget. This amount is also recommended by the California Water Commission.

The requested appropriation would continue a six year partnership between the Corps of Engineers and local sponsors. To date about $9.5 million in federal funds and $5.3 million in local resources have been expended.

The purpose of the FY 1996 appropriation is to complete preconstruction engineering and design.

This project was authorized by the Flood Control Act of 1965. The estimated total cost is $130 million. The present schedule would begin construction by Spring 1997 with completion estimated in 2004.

BACKGROUND

The Napa River is the main waterway into which all tributaries of the Napa River flow. The river reaches its highest flow and the main point of concentration of storm water in the heart of downtown City of Napa. The river basin covers 426 square miles, ranging from marshes to mountainous terrain.

The original town of Napa was established in 1848, at the head of the navigable Napa River channel, from San Francisco Bay. It was the future city's only means of transportation and commerce until railroad service was introduced in 1902.

The river has damaged the City of Napa twelve times in the past 50 years. The most damaging floods of record occurred in 1955, 1958, 1963, 1965, 1986 (flood of record), 1993 and 1995 (January and March). Damage in the 1986 flood amounted to $124 million, loss of three lives and 5,000 persons displaced. The losses in 1995 have not been totalled yet, but preliminary estimates are over $40 million. According to the Corps of Engineers, almost all of this damage would have been prevented by the project now in progress.

PROJECT DESCRIPTION AND CURRENT STATUS

The flood control plan provides 100 year level of protection to the City of Napa from flooding on the Napa river and Napa Creek. The improvements consist of channel excavation, sheetpile walls, set-back flood walls, set-back levees, a bypass channel, and related environmental mitigation measures.

Project improvements on the Napa River would cover 5.7 miles of the lower reaches of the river, principally in the City of Napa. A recreation plan sponsored by the City of Napa would include pedestrian/hiking trails on project land. Napa Creek improvements will consist of 2,600 feet of channel excavation and streambank protection. A record of damage from recent floods is included as Appendix A of this statement. The cost/benefit ratio is 1.35 to 1.0 flood control, and 2.14 to 1 for recreation.

This is the seventh year in the life of the approved project. Appendix B of this statement provides a milestone of the complete time schedule and the current status of the schedule. As is indicated, the most time consuming elements of the project, other than actual construction, have been completed.

POLICY ISSUE

The President's proposed budget also includes a policy proposal which would redefine conditions for federal participation in local flood control projects. If enacted, this policy proposal would effectively eliminate the Napa Flood Control Project from federal participation. The $130 million price tag would make a "go it alone" decision unrealistic and impossible for a total County-wide population of 117,366.

Further, to discontinue this project after almost seven years of activity and $15 million in federal and local expenditures would constitute a breach of good faith. At the end of FY 1996, the Corps of Engineers estimate of expended funds is $11.4 million.

Finally, federal costs associated with past and possible future floods more than justifies completion of this project. To institute a policy such as this retroactively would be an unfair and damaging decision.

BUDGET

The current estimate of local/federal sharing of project cost is as follows:

NAPA RIVER FLOOD CONTROL PROJECT
COST SUMMARY

FISCAL YEAR	LOCAL FLOOD CONTROL	LOCAL RECREATION	FEDERAL
Costs thru 1994	*1,000,601	85,000	9,513,000
Costs for FY 96-97	250,000	25,000	1,687,000
Fiscal Year 1997	9,570,000	30,000	10,000,000
1998	13,050,000	130,000	8,000,000
1999	29,510,000	1,070,000	8,000,000
2000	6,780,000	0	8,000,000
2001	7,260,000	0	13,000,000
2002	1,330,000	0	7,170,000
2003	(2,000,000)	(30,000)	2,030,000
TOTAL	66,750,601	1,310,000	67,400,000
ANNUAL PROJECT MAINTENANCE			
Flood Control	282,000		0
Recreation	40,000		0

In 2003, local share is above 50% of total project costs. Federal reimbursement is made to provide for 50/50 cost sharing.

***NOTE: These are cash outlays. An additional $4.24 million in staff resource time not included above.**

Corps continues navigation dredging - costs not shown in annual maintenance.

The President's FY 1996 proposed budget includes $787,000 to complete engineering design and environmental certification. We urge the Committee's approval of this item to continue the progress of the project to ultimate completion.

APPENDIX A

NAPA RIVER CALIFORNIA - RECENT FLOODING

FEBRUARY 1986

F.E.M.A. REPORTED LOSSES

ECONOMIC	$124,000,000
LIVES LOST	3
HOMES DESTROYED	400
HOMES DAMAGED	900
BUSINESSES DESTROYED	20
BUSINESSES DAMAGED	150

JANUARY 1995

F.E.M.A. DAMAGE SURVEY (PRELIMINARY)

ECONOMIC	$6,040,000
HOME DESTROYED	
HOMES DAMAGED	123
BUSINESSES DESTROYED	
BUSINESSES DAMAGED	5
AGRICULTURAL DAMAGE	$2,500,000

MARCH 1995

F.E.M.A. DAMAGE SURVEY (PARTIAL)

ECONOMIC	$38,500,000
HOMES DESTROYED	195
HOMES DAMAGED	408
BUSINESSES DESTROYED	10
BUSINESSES DAMAGED	37
AGRICULTURAL DAMAGE	$7,500,000

AS OF MARCH 15, 1995,
FEDERAL DAMAGE SURVEY TEAMS ARE STILL
IN NAPA ASSESSING DAMAGES AND
RESPONDING TO REQUESTS FOR AID FOR
VICTIMS OF THE JANUARY 1995 FLOOD
WHILE LOCAL EMERGENCY CREWS ARE STILL
ENGAGED IN THE CURRENT EMERGENCY
(MARCH 1995 FLOOD)

APPENDIX B

THE NAPA RIVER SCHEDULE IS:

Initiation of Pre-Construction Engineering and Design (PED)	Oct. '88	Completed
General Design Conference	Jan. '89	Completed
Public Hearing	May '89	Completed
Public Scoping Workshop	Jun. '89	Completed
Inter-Agency Constraints and Concerns Workshop	Aug. '89	Completed
Napa City Council Sponsors Recreation Component	Sep. '89	Completed
"Information Paper No. 1" Concept Design released for local task force and Division Review	May. '90	Completed
Public/Technical Review of Alternatives and Recreation Element	Apr.-Aug. '91	Completed
In-Progress Review, Alternatives, HTW Schedule and Cost Revisions	Aug. '92	Completed
Identify National Economic Development Act (NED) Plan	May '93	Completed
Technical Review, Administrative Review Draft Design Document (GDM) - EIS-EIR	Aug.-Dec. '94	Completed
Publish Draft GDM/EIS-EIR	31 Mar. '95	Completed
Submit Draft EMD/EIR to EPA	24 May '95	Completed
Approve Construction	August '95	
Initiate Plans and Specs	Jun. '96	
Sign Project Cooperation Agreement (PCA)	Nov. '96	
Begin Construction	Aug. '97	
Complete Construction	Jun. '04	

WEDNESDAY, MARCH 29, 1995.

MARIN COUNTY SHORELINE

SAN CLEMENTE CREEK

WITNESSES

ALAN AIROLDI, MAYOR, TOWN OF CORTE MADERA
NORMAN RICHARDSON, VICE MAYOR

Ms. TENNIS. We turn to the Town of Corte Madera now, Alan Airoldi, Mayor.

Mr. AIROLDI. Good morning.

My name is Alan Airoldi, and I am the Mayor of Corte Madera, California. I come before you to speak on behalf of the Marin County Shoreline-San Clemente Creek Flood Control Project, and your continued support of that. I ask that you support the California Water Commission's recommendations, which include $234,000, which is in the President's fiscal year 1996 budget, and also an additional—that is to complete the feasibility study, and an additional $150,000 which would go forward into preconstruction engineering and design.

We have submitted a written comment on that for the record, so I hope by my brevity, you won't take that as an indication of our lack of enthusiasm, concern or need.

Mr. RIGGS. To the contrary, Mr. Mayor.

Thank you.

[The statement of Mr. Airoldi follows:]

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

STATEMENT OF ALAN AIROLDI, MAYOR
TOWN OF CORTE MADERA, CALIFORNIA

Good Morning! My name is Alan Airoldi. I am the Mayor if Corte Madera, California.

I am before you this morning to request that this Subcommittee maintain the President's FY 96 budget allocation of $234, 000 for the feasibility study listed as **the Marin County Shoreline - San Clemente Creek.**

The Town of Corte Madera is bordered by San Francisco Bay, just north of the Golden Gate Bridge. Its proximity to San Francisco, pleasant climate, low crime rate and natural beauty make the Town a very desirable place in which to live.

San Francisco Bay is our blessing and our bane. High tides also put much of our Town in harms way. Severe flooding occurs in the part of Town situated along San Clemente Creek. A combination of tidal flow, ground subsidence and storm water runoff are the causes of the devastation.

California, and Corte Madera, have had far more than our fair share of wet weather this year that only exacerbates the instant problem. Tidal flooding can even occur in dry weather. We expect that the frequency and damage will increase with the passage of time because the underlying Bay mud is consolidating and therefore the homes, businesses and public improvements thereon are sinking and will continue to do so.

Corte Madera is absolutely committed to maintaining the community's safety and quality of life. To that necessary purpose, the Town has expended more than one million dollars of local funds to study the flooding problem and find the best solution. We signed a Cost Sharing Agreement with the Corps to conduct a Feasibility Study that will further refine the flooding problem and develop a plan for Congressional and local action. I **want to emphasize** that we do now, and have always, considered ourselves as **partners** with the Federal Government in doing what has to be done to protect property and preserve the ecological integrity of the Bay.

Our Cost Sharing Agreement, assures the Government that the Town will pay its full share of all local costs. In very simple terms, my presence here, today, is to ask that Congress do the same.

Last year, with your Committee's support and the assistance of our Representative, Lynn Woolsey, the Town secured funding for the Feasibility Study that is now well underway and scheduled for completion next year.

The President's FY 96 Budget includes funds to complete the study. I respectfully request that you maintain the FY 96 budget allocation of $234,000 for the Marin County Shoreline - San Clemente Creek Feasibility Study.

The study will underscore the problem. It will not improve the conditions that threaten nearly one third of our Town. I do, therefore, also request that you add an allocation of $150,000 to the FY 96 Budget to provide for a seamless transition into preconstruction engineering and design that the Corps can do in the latter part of FY 96.

Thank you very much for your kind attention and continuing support for this very important project.

WEDNESDAY, MARCH 29, 1995.

COYOTE AND BERRYESSA CREEKS

GUADALUPE RIVER

UPPER GUADALUPE RIVER

UPPER PENITENCIA CREEK

WITNESSES

ROSEMARY KAMEI, CHAIR, SANTA CLARA VALLEY WATER DISTRICT
STAN WILLIAMS, GENERAL MANAGER, SANTA CLARA VALLEY WATER DISTRICT
KAY WHITLOCK, FLOOD CONTROL MANAGER, SANTA CLARA VALLEY WATER DISTRICT

Ms. TENNIS. Rosemary Kamei, from Santa Clara Valley Water District.

Ms. KAMEI. My name is Rosemary Kamei. I am Chairwoman, elected to the Santa Clara Valley Water District Board of Directors.

On behalf of the District, I would like thank the subcommittee for past support. In the face of disaster, the good news is that in our flood control projects that have been completed, there were no damages. The bad news is that we haven't completed all of the flood control.

As I go into my community and listen to constituents who have been victims of flood disasters, not once but twice in 1995, they have asked me to come today as a messenger. So it is today we the people of Santa Clara County urgently seek your assistance for the necessary flood control funding, critically needed for our protection, for the Guadalupe River Project in the amount of $8.1 million; for the Upper Guadalupe River Project, in the amount of $285,000; for the Coyote and Berryessa Creek Project, in the amount of $12 million; and for the Upper Penitencia Creek Project in the amount of $300,000. These have been identified in the President's budget.

We also request your consideration of funding continuation for the San Jose Water Area Reclamation and Reuse Program and the San Francisco Area Water Reclamation Study.

Thank you.

[The statement of Ms. Kamei follows:]

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AN AFFIRMATIVE ACTION EMPLOYER

STATEMENT OF

Rosemary C. Kamei

Chair/Board of Directors

Santa Clara Valley Water District

San Jose, California

March 29, 1995

Before the

United States House of Representatives

Committee on Appropriations

Subcommittee on Energy and Water Development

The Honorable John Myers, Chairman

SUMMARY

THE STATEMENT URGES THE COMMITTEE'S SUPPORT IN THE AMOUNT OF $8.1 MILLION TO CONTINUE CONSTRUCTION OF THE GUADALUPE RIVER PROJECT.

recycled pap

GUADALUPE RIVER PROJECT

BACKGROUND

The Guadalupe River is one of the major waterways that flow through the highly developed area of San Jose, California. Historically, the river has flooded the downtown areas of San Jose and Alviso beyond local capability to prevent. For example, estimated damages from a 1 percent flood that would inundate the urban center of San Jose, is $527 million. It is estimated that a 2 percent flood on this river would cause $234 million worth of damage under existing conditions. The probability of such a flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. The Guadalupe River had started to overflow its banks in April 1982 and January 1983 before the storms receded and avoided major damage. The Guadalupe River did overbank in February 1986 and most recently, on January 9, 1995, and March 10, 1995, causing some damage to residences and business in the St. John and Pleasant Street area.

PROJECT SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier study. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies for the Guadalupe River were completed in 1978. The Stage 2 report was completed for the combined Guadalupe River, Coyote Creek and Baylands. The report at that time established the economic feasibility and federal interest in the Guadalupe River.

The Guadalupe River project received authorization for construction under the Water Resources Development Act of 1986. Since that time, the final General Design Memorandum (GDM) was completed in 1992, the local cooperative agreement was executed in March 1992, construction of the first phase of the project was completed in August 1994, and a construction contract for the second phase of the project was awarded in July 1994.

In an effort to accelerate the completion of this project, the local community through the Santa Clara Valley Water District has provided a substantial amount of technical and financial assistance since 1972. The local community has initiated local projects within the Corps project reach and reaches downstream of the Corps limits. In excess of $28 million in local funds has been spent on the planning, design and construction of such improvements to date.

FY 1995 FUNDING

The 1995 Budget includes $10 million to continue construction of the Guadalupe River Project. Construction of Contract 1 was completed in August 1994. Construction of Contract 2 is proceeding and scheduled to be completed in January 1996. Contract 3 of the project is scheduled to be advertised in April 1996.

NECESSARY FY 1996 FUNDING

Funding for the Guadalupe River project during 1996 in the amount of $8.1 million to continue construction is essential to providing critically needed flood protection to the metropolitan area of San Jose and the north San Jose community of Alviso.

RECOMMENDATION

Based upon the present high flood risk and potential damage from the Guadalupe River, it is requested that the Committee support $8.1 million that is included in the Administration's budget to continue construction of the Guadalupe River project.

1996

Santa Clara Valley Water District

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STATEMENT OF

Rosemary C. Kamei

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San Jose, California

March 29, 1995

Before the

United States House of Representatives

Committee on Appropriations

Subcommittee on Energy and Water Development

The Honorable John Myers, Chairman

SUMMARY

THE STATEMENT URGES THE COMMITTEE'S SUPPORT IN THE AMOUNT OF $285,000 TO CONTINUE THE FEASIBILITYSTUDY ON THE UPPER GUADALUPE RIVER PORTION OF THE GUADALUPE RIVER PROJECT.

recycled

UPPER GUADALUPE RIVER PROJECT

BACKGROUND

The Guadalupe River is one of the two major waterways that flow through the highly urbanized area of Santa Clara County, California. Historically, the river has flooded the central district of San Jose and areas south beyond local capability to prevent. For example, the estimated damages from a 1 percent flood, which would inundate the urban center of San Jose, is $527 million. Damages in the Upper Guadalupe River's densely residential floodplain south of Highway 280 would exceed $50 million. The probability of a large flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. The Upper Guadalupe River near Alma Street had started to overflow its banks in February 1980 before the storm receded and avoided major damage. The Upper Guadalupe River did overbank in March 1982, January 1983, February 1986, and again in January 1995, and March 10, 1995, causing damage to several residences and businesses in the Alma Street and Willow Street area. The flooding of January 9, 1995, and March 10, 1995, closed Highway 87.

STUDY SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier study. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies for the Guadalupe River were completed in 1978. The 1980 Stage 2 report established the economic feasibility and federal interest in the Guadalupe River only between Highway 880 and Highway 280. In light of flooding in 1982 and 1983, the local sponsors requested that the Corps reopen its study of the Upper Guadalupe River (upstream of Highway 280). The Corps completed a reconnaissance study in November 1989 which established that there was an economically justifiable alternative solution to the flood problem. The report recommended proceeding to the feasibility study phase. A Feasibility Cost-Sharing Agreement (FCSA) was signed by the local sponsor and the Corps on October 16, 1990 and amended in December 1992. The milestone F4 conference resulted in a reformulation of the project alternatives. A new FCSA is being prepared to show a new schedule and higher project cost. The new estimate is for a $4.2 million study scheduled for completion by 1997.

FY 1995 FUNDING

A feasibility investigation on the Upper Guadalupe River continued in 1995 with funding in the amount of $100,000.

NECESSARY FY 96 FUNDING

Funding for the Upper Guadalupe River project during 1996 in the amount of $285,000 to continue the feasibility study effort is essential to timely implementation of critically needed flood protection.

RECOMMENDATION

Based upon the present high flood risk and potential damage from the Upper Guadalupe River, it is requested that the Committee support $285,000 that is included in the Administration's budget for 1996 to continue the feasibility study on the Upper Guadalupe River. Costs of the study are shared equally between the sponsor and the Corps.

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AN AFFIRMATIVE ACTION EMPLOYER

STATEMENT OF

Rosemary C. Kamei
Chair/Board of Directors

Santa Clara Valley Water District
San Jose, California

March 29, 1995

Before the

United States House of Representatives

Committee on Appropriations

Subcommittee on Energy and Water Development

The Honorable John Myers, Chairman

SUMMARY

THE STATEMENT URGES THE COMMITTEE'S SUPPORT IN THE AMOUNT OF $12 MILLION TO CONTINUE CONSTRUCTION OF THE COYOTE CREEK PROJECT AND COMPLETE GDM PREPARATION AND DESIGN FOR BERRYESSA CREEK PROJECT.

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COYOTE/BERRYESSA CREEK PROJECTS

BACKGROUND

The Coyote and Berryessa Creeks investigation was authorized by Congress in 1941 under the Guadalupe River and Adjacent Streams authority. Coyote Creek is one of the two major waterways that flow through the highly urbanized areas of San Jose, Milpitas and Santa Clara County, California. Berryessa Creek flows through a small portion of San Jose and the growing community of Milpitas. Historically, Coyote Creek has flooded the north San Jose community of Alviso beyond local capability to prevent. Damages on Coyote Creek would be $237 million during the 1 percent event to the north San Jose and Milpitas area. Berryessa Creek would cause $20 million in damage to the homes and industry of Milpitas. The probability of a large flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. In January 1983, floodwaters escaped from Berryessa Creek and caused damage to several homes and businesses. Coyote Creek has caused the greater damages amounting to several million dollars, overbanking in April 1982 and again in March 1983. Hundreds of people were forced to evacuate their homes where floodwater stood for many days. Flood damages were avoided in January and again in March 1995 due to the protection offered by the partially constructed project.

PROJECT SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier Guadalupe River and Adjacent Streams Study which included Coyote Creek. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies were completed in 1978. The third phase, study of freshwater flooding in the Baylands, (which included the lower reaches on Coyote Creek) was completed in 1979. The Stage 2 report could not establish the economic feasibility and federal interest in Coyote Creek. In light of flooding in 1982 and 1983, the Corps refocused its study on Coyote Creek to address the inadequate level of protection provided by unstable levees. Berryessa Creek originally was a Section 205 study but was combined with Coyote Creek when the project cost exceeded the limits of that program.

In an effort to accelerate the completion of this overall program, the local community through the Santa Clara Valley Water District has provided a substantial amount of technical and financial assistance since 1972. Special planning studies have been completed by the District for inclusion into the Corps' studies. The Coyote/Berryessa Creek project received authorization for preconstruction, engineering and design under the Water Resources Development Act of 1986. The project was authorized for construction under the Water Resources Development Act of 1990. The Project Cooperation Agreement for Coyote Creek was executed in August 1994.

The severe flood problem and the ominous threat of future damages has forced the local community to initiate a local project on Coyote Creek in anticipation of future federal participation. Over $30 million has been spent on the planning, design and construction of improvements on Coyote Creek to date, which are planned for augmentation of and incorporation into the federal project. The Chief of Engineer's February 1989 report contained $8.63 million Section 104 credit for flood control measures undertaken by the District from San Francisco Bay to Milpitas Sewage Treatment Plant. Congress authorized, in the Water Resources Development Act of 1988 (PL 100-676), $3 million in reimbursement to the Water District for construction of flood control measures upstream of the Milpitas Sewage

Treatment Plant. The District has completed this work. A Section 215 agreement was executed with the Corps in December 1993 which provides additional $3 million for the sponsor to design and construct approximately 7,000 feet long of Coyote Creek upstream of Highway 237 in the cities of San Jose and Milpitas. This reach is currently under construction and is scheduled to be completed in November 1995.

FY 1995 FUNDING

The 1995 Budget included $12 million to continue Preconstruction Engineering and Design (PE&D) on Berryessa Creek and continue construction on Coyote Creek. The Corps awarded the Coyote Creek construction contract in September 1994. Construction is scheduled to be complete in November 1995.

NECESSARY FY 96 FUNDING

Construction funding for the Coyote/Berryessa Creek projects during 1996 in the amount of $12 million as contained in the Administration's budget will be required to continue federal construction of the Coyote Creek project and complete GDM preparation and design for Berryessa Creek.

RECOMMENDATION

Based upon the present high flood risk and potential damage from Coyote and Berryessa Creeks, it is requested that the Committee support continued construction funding in the amount of $12 million as included in the Administration's budget to continue federal construction.

Santa Clara Valley Water District

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AN AFFIRMATIVE ACTION EMPLOYER

STATEMENT OF

Rosemary C. Kamei
Chair/Board of Directors

Santa Clara Valley Water District
San Jose, California

March 29, 1995

Before the

United States House of Representatives

Committee on Appropriations

Subcommittee on Energy and Water Development

The Honorable John Myers, Chairman

SUMMARY

THE STATEMENT URGES THE COMMITTEE'S SUPPORT IN THE AMOUNT OF $300,000 TO START THE FEASIBILITY STUDY OF THE UPPER PENITENCIA CREEK PROJECT.

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UPPER PENITENCIA CREEK PROJECT

BACKGROUND

The Upper Penitencia Creek watershed is located in the northeast part of Santa Clara County, California, near the southern end of San Francisco Bay. The creek has flooded many times, most notably in 1911. More recently the creek overbanked in 1978, 1980, 1982, 1983, 1986, and 1995. The January 9, 1995, event caused damage to a commercial nursery and deposited mud in a condominium complex and a business park.

The proposed project on Upper Penitencia Creek, from Coyote Creek confluence to Dorel Drive, will protect portions of cities of San Jose and Milpitas. The watershed is completely urbanized, undeveloped land is limited to a few scattered parcels still used for agriculture, and the corridor along Upper Penitencia Creek. Based on 1980 land use, 4,200 buildings are located in the floodprone area, 1,300 of which will have water entering the first floor. The estimated damages from a 1 percent or 100-year flood is $48 million.

STUDY SYNOPSIS

The Natural Resources Conservation Service (NRCS) under the authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566, completed a study of the economic feasibility of constructing flood damage reduction facilities on Upper Penitencia Creek. However, NRCS watershed plan has been stalled since 1990 by the U.S. Department of Agriculture because the benefits to agriculture are less than 20 percent of the total benefits of the project.

The Santa Clara Valley Water District requested that the Corps proceed with a reconnaissance study in April 1994 as one possible option to solving the dilemma of the stalled NRCS plan. Funds were appropriated by Congress for FY 1995 and the Corps started the reconnaissance study in October 1994. The Reconnaissance Report is proceeding satisfactorily and is scheduled to be completed in June 1995.

FY 1995 FUNDING

The Reconnaissance Study started on Upper Penitencia Creek in FY 1995 with funding in the amount of $150,000. The study is scheduled to be completed in June 1995.

NECESSARY FY 1996 FUNDING

Funding for the Upper Penitencia Creek project during FY 1996 in the amount of $300,000 to start Feasibility Study is essential to providing needed flood protection to the citizens in Cities of San Jose and Milpitas.

RECOMMENDATION

Based upon the present high flood risk and potential damage from Upper Penitencia Creek, it is requested that the Committee include $300,000 to initiate a feasibility study for the Upper Penitencia Creek project.

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Rosemary C. Kamei
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Santa Clara Valley Water District
San Jose, California

March 29, 1995

Before the

United States House of Representatives

Committee on Appropriations

Subcommittee on Energy and Water Development

The Honorable John Myers, Chairman

SUMMARY

THE STATEMENT URGES THE COMMITTEE'S SUPPORT TO CONTINUE CONSTRUCTION FUNDING FOR THE SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM.

recycled paper

SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM

BACKGROUND

The San Jose Area Water Reclamation and Reuse Program, also known as South Bay Water Recycling, will allow the City of San Jose and its tributary agencies of the San Jose/Santa Clara Water Pollution Control Plant to protect endangered species habitats, meet receiving water quality standards and supplement the Santa Clara County water supplies.

The Santa Clara Valley Water District (District) is participating with the City of San Jose in the development of the reclamation and reuse program. Towards that end, the District is assisting the City of San Jose in providing financial support and technical assistance for program planning, liaison with water retailers, and in providing design, construction, inspection, and other services for the Program.

The Program is divided into two phases. Phase 1, now entering final design, involves construction of nearly 100 miles of transmission and distribution pipelines, pump stations and reservoirs, and has an estimated capital cost of $130 million. It is anticipated that Phase 1 will begin operations in November 1997, and will deliver an estimated 9,000 acre-feet/yr of nonpotable recycled water. The City of San Jose is the program sponsor for Phase 1.

Phase 2, estimated to be completed in 2001, will involve the assessment of other potential recycling strategies including additional nonpotable, groundwater recharge, and surface water augmentation. The City of San Jose and the District will be working jointly on this effort.

In 1992, Public Law 102-575 authorized the Bureau of Reclamation to participate with the City of San Jose and the District in the planning, design, and construction of demonstration and permanent facilities to reclaim and reuse water in the San Jose metropolitan service area.

FY 1995 FUNDING

Construction funding of the San Jose Area Water Reclamation and Reuse Program started in 1995 with funding in the amount of $1,715,000.

NECESSARY FY 96 FUNDING

Funding for the San Jose Area Water Reclamation and Reuse Program during 1996 to continue the construction effort is essential to timely implementation of this important water supply project.

RECOMMENDATION

Based on the important water supply and environmental benefits to the area, it is requested that the committee continue the construction funding for the San Jose Area Water Reclamation Program. Costs of the project are shared between the sponsor and the Bureau of Reclamation.

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STATEMENT OF

Rosemary C. Kamei
Chair/Board of Directors

Santa Clara Valley Water District
San Jose, California

March 29, 1995

Before the

United States House of Representatives

Committee on Appropriations

Subcommittee on Energy and Water Development

The Honorable John Myers, Chairman

SUMMARY

THE STATEMENT URGES THE COMMITTEE'S SUPPORT TO CONTINUE CONSTRUCTION FUNDING FOR THE SAN FRANCISCO AREA WATER RECLAMATION STUDY.

recycled pap

SAN FRANCISCO AREA WATER RECLAMATION STUDY

BACKGROUND

The purpose of the San Francisco Area Water Reclamation Study, also known as the Central California Regional Water Recycling Project, is to conduct a feasibility study to identify California regions that could use high-quality recycled water for such purposes as agricultural irrigation or salinity control. The study is examining if freshwater can be freed-up, and what potential exchange could result to benefit to the environment, urban, or industrial needs. Only excess recycled wastewater that exceeds maximum local usage by Bay Area municipalities would be exported to outside regions for beneficial reuse. This excess water is currently disposed of into the San Francisco Bay, rivers and Delta—a discharge option that will be more difficult in the face of increasingly stringent discharge limitations and higher treatment standards facing the entire State.

The feasibility study is scheduled for completion in October 1995, so that a complete environmental review of the best alternatives can be completed by October 1997. These deadlines comply with the PL 102-575 requirement for a report back to Congress no later than 4 years after the Bureau of Reclamation's first appropriation in October 1993.

The Santa Clara Valley Water District is participating in the feasibility study in providing financial, technical, and project management support, along with other local water and wastewater agencies.

FY 1995 FUNDING

Feasibility Study funding of the San Francisco Area Water Reclamation Study in FY 1995 was $790,000.

NECESSARY FY 96 FUNDING

Funding for the San Francisco Area Water Reclamation Study during 1996 to continue the feasibility study effort is essential to timely completion of the Study.

RECOMMENDATION

Based on the important water supply and wastewater discharge benefits to the region, it is requested that the committee continue the feasibility study funding for the San Francisco Area Water Reclamation Study. Costs of the project are shared between the sponsor and the Bureau of Reclamation.

WEDNESDAY, MARCH 29, 1995.

SANTA PAULA CREEK

WITNESS

ARTHUR E. GOULET, DIRECTOR OF PUBLIC WORKS, COUNTY OF VENTURA

Ms. TENNIS. We will skip number 16, the City of Santa Cruz.

Moving to the County of Ventura, Arthur Goulet, Director of Public Works.

Mr. GOULET. Thank you.

I am Arthur Goulet, Director of Public Works of Ventura County, and also the Engineer Manager of the Ventura County Flood Control District.

Congressman Gallegly testified in support of the Santa Paula Creek Project in Ventura County. We are requesting $4 million for reinitiation of construction. The President's budget only reflects $300,000.

However, the California Water Commission supports the $4 million amount. And it is our understanding that the Corps of Engineers has the ability to accelerate the design on this project such that they can initiate construction in 1996, provided the $4 million is appropriated.

The need for the work was eloquently described in the 1990 memorandum from the Commanding Officer of the South Pacific Division to the Chief of Engineers in which he stated:

> I was appalled by the presently deteriorated and unsafe condition of the channel. It was clear to me that the partially constructed concrete channel damaged by the recent floods and the recent buildup of debris and sediment in the channel, poses a threat of flooding that may result in loss of human life and destruction of property.

I can assure you that the conditions today are far worse than described in 1990. Since 1992, the Corps of Engineers has expended more than $450,000 to keep their facility from collapsing, while we spent more than $300,000 just this past winter in flood-fighting along the right-of-way we have already acquired to meet our obligations under our contract with the United States. It is time for the Corps of Engineers to meet its obligations.

[The statement of Mr. Goulet follows:]

STATEMENT
ON BEHALF
OF

VENTURA COUNTY AND
VENTURA COUNTY FLOOD CONTROL DISTRICT
VENTURA, CALIFORNIA

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

March 29, 1995

PROJECT:
SANTA PAULA CREEK FLOOD CONTROL PROJECT
VENTURA COUNTY, CALIFORNIA

ACTION REQUESTED:
Inclusion of $4,000,000 for Santa Paula Creek
in the Federal Budget

The Santa Paula Creek project in Ventura County is unusual in the annals of the Corps of Engineers. It was authorized by Congress in 1948 and construction of the first phase was completed in 1974. However, after bids for the second phase had been received and a contract awarded in 1974, a preliminary injunction was issued which prevented this contract from proceeding. Subsequently, construction of the project was permanently enjoined for failure to comply with the National Environmental Policy Act.

In the ensuing years the first phase facility, which was dependent on upstream debris retention that was not constructed, has been severely damaged and has deteriorated to the point where it constitutes a hazard and could cause damages to adjacent property including the Route 126 freeway which passes over it. Although the first phase facility lies within right-of-way owned by the Ventura County Flood Control District, it has not been accepted for maintenance and remains the responsibility of the Corps.

As provided in the project cooperation agreement, the Flood Control District acquired more than 2.7 miles of right-of-way but the Corps has not fulfilled its obligations under the agreement, since the project remains to be completed.

During the almost 20 years since the project was enjoined, the Corps has attempted to develop an environmentally sensitive project, and during the past several years has been preparing a General Re-evaluation Report. This is essentially complete and a new EIS is ready for public review. The recommended project is more environmentally compatible and, based on comments received to date, appears to be acceptable to all interests.

Because of the dismal condition of the first phase facility, it is essential that construction of the project be re-initiated at the earliest possible date. Accordingly, we are requesting a $4 million appropriation for FY 1996. This will enable the Corps to commence replacement of the deteriorated first phase facility with a new facility consistent with overall project recommended in the General Re-evaluation Report. It is our understanding that the Corps has the ability to accelerate the design work so that physical construction can begin in FY 1996, provided the $4 million is appropriated.

Early re-initiation of the project is justified because of the dangerous condition created by the existing first phase facility, and to obviate further extensive expenditures by the Corps and the Flood Control District related to the incompleted project. Recent expenditures of this nature include those made by the Corps in 1992, 1994, and 1995. These amounted to approximately $150,000, $125,000 and $70,000, respectively.

We also believe it will be necessary for the Corps to spend more in the coming months due to damage sustained this winter. In addition, it was necessary for the Flood Control District to spend in excess of $300,000 this winter within the right-of-way it acquired for the uncompleted project beyond the limits of the existing first phase facility.

It has been determined that the proposed recommended plan being considered in the General Re-evaluation Report can be pursued under the existing project authorization, and that the existing project agreement with the Ventura County Flood Control District can apply with minor modifications. The injunction against further construction is being addressed in the new EIS and, based on coordination to date, no controversy is anticipated.

As mentioned earlier, the existing first phase facility poses a hazard. This was acknowledged as long ago as February, 1990 in a letter from the Commanding Officer, South Pacific Division of the Corps to the Chief of Engineers in which he stated, "I was appalled by the presently deteriorated and unsafe condition of the channel. It was clear to me that the partially constructed concrete channel, damaged by the recent floods and the present build-up of debris and sediment in the channel, poses a threat of flooding that may result in loss of human life and destruction of property." Conditions today are even worse, and demand expeditious action.

Finally, as an indicator of the importance of completing this project to the City of Santa Paula, the following figures are pertinent. About 4000 homes are located, and about 13,000 people live, in the flood plain mapped by the Federal Emergency Management Agency. This flood plain also includes the entire downtown area, the City's historic neighborhoods, and five of seven schools in the elementary school district. Completion of the project recommended in the General Re-evaluation Report will lift the flood threat and the flood insurance premium burden from all of these people and properties.

We sincerely appreciate the subcommittee's consideration of our request.

WEDNESDAY, MARCH 29, 1995.

LOWER MISSION CREEK

WITNESS

PETE WILSON, ASSISTANT CITY ADMINISTRATOR, CITY OF SANTA BARBARA

Ms. TENNIS. The City of Santa Barbara is now Pete Wilson, Assistant City Administrator.

Mr. WILSON. All things considered, a pretty good name to have these days.

The City of Santa Barbara has the Lower Mission Creek Flood Control Project, and it reaches right through the middle of downtown. Damage from recent floods to city and public property was immense and the Corps is prepared to continue flood control upgrade on a priority basis, because investigations have taken 20 years without result.

Mr. RIGGS. How much damage?

Mr. WILSON. January, $7 million, and March another $3 million; 454 residential and 129 commercial properties are within the Lower Mission Creek 100-year floodplain. The assessed value of those properties is some $83 million. The recent January 10th and March 10th floods pointed out the eminent need for flood control improvement in Mission Creek.

It is recommended that funding in the amount of $300,000 be provided for this project, as opposed to the President's budget of $81,000, to begin a feasibility study as soon as possible. The County of Santa Barbara and the City of Santa Barbara have jointly contributed to this need as well.

Thank you for the opportunity to speak before the committee.

[The statement of Mr. Wilson follows:]

Before
United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Hearings on FY 1996 Energy and Water Appropriations for Lower Mission Creek, Santa Barbara, California

Washington, D.C.

Presented by
Mr. Peter K. Wilson, Assistant City Administrator,
on behalf of
the City Council
of the City of Santa Barbara

March 29, 1995

Mr. Chairman:

This flood control project reaches right through the middle of downtown Santa Barbara. Its damage in recent floods to City public and private property was immense and the Corps is prepared to continue flood control upgrade on a priorit basis because investigations have taken 20 years without result.

454 residential and 129 commercial properties are within the Lower Mission Cree 100-year flood plain. Their assessed value is estimated at $83,308,000.

The recent January 10 and March 10, 1995 declared federal flood disasters points the eminent need for a flood control improvement on Mission Creek

It is recommended that Congress approve the $300,000 funding level for this proj so a feasibility study can begin to be prepared as soon as possible.

The County of Santa Barbara and the City of Santa Barbara have jointly contribut to this need.

I thank the Committee.

(D ENGR PKCHAIR DOC)

WEDNESDAY, MARCH 29, 1995.

CENTRAL BASIN GROUNDWATER PROTECTION PROJECT

WITNESSES

GARTH GARDNER, CHAIRMAN, SOUTHEAST WATER COALITION
DENNIS COURTEMARCHE, CITY MANAGER, CITY OF PICO RIVERA

Ms. TENNIS. Garth Gardner, Chairman, representing the Southeast Water Coalition.

Mr. GARDNER. Including myself today, representing this project are council members from the City of Downey, Diane Boggs, and council members from the City of Paramount, Diane Martinez and Dr. Hester Caldwell.

On behalf of the Southeast Water Coalition Joint Powers Authority, I urge the subcommittee adopt the budget request of $375,000 for the Army Corps of Engineers' feasibility study of the Central Basin Groundwater Protection Project.

This project is included in the President's budget. The study will evaluate the effect of contaminated groundwater migrating from a Superfund site through the Corps' Whittier Narrows Dam into the central basin and will identify remedial measures to protect the groundwater of 1.67 million residents in the south Los Angeles County.

EPA monitoring wells confirm that some degree of contaminated groundwater migration has already occurred. The Corps' study and the eventual remedial action will preserve a major body of water and would save millions of dollars in inevitable cleanup costs if we take action now. We appreciate your past support and look forward to continued support and we thank you for the committee's support—it is nice to see Mr. Fazio still on the committee.

[The statement of Mr. Gardner follows:]

Southeast
Water Coalition
A joint powers authority to protect the Central Groundwater Basin

Honorable Garth G. Gardner
Chairperson

Honorable Robert S. Brazelton
Vice Chairperson

Member Agencies

Water Replenishment District of Southern California

City of Cerritos
City of Commerce
City of Downey
City of Huntington Park
City of Lakewood
City of La Mirada
City of Norwalk
City of Paramount
City of Pico Rivera
City of Santa Fe Springs
City of South Gate
City of Vernon
City of Whittier

Dennis Courtemarche
Authority Secretary

Steven L. Dorsey
Authority Legal Counsel

Randy Rassi
Authority Treasurer

City of Pico Rivera
Lead Agency

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Statement of The Honorable Garth Gardner, Councilmember
City of Pico Rivera, California

Mr. Chairman and members of the subcommittee, I am Garth Gardner, Councilman from the City of Pico Rivera, California, and Chairman of the Southeast Water Coalition Joint Powers Authority. I appreciate this opportunity to testify on behalf of the Authority and urge the subcommittee to adopt the Administration's budget request of $375,000 for the Army Corps of Engineers' feasibility study of the Central Basin Groundwater Protection Project.

The Southeast Water Coalition is a joint powers authority of 13 cities and the Water Replenishment District of Southern California located in the Central Groundwater Basin in Los Angeles County. The Authority was established in 1991 for the purpose of protecting the Central Basin from contaminated groundwater plumes originating in the San Gabriel Basin migrating towards Whittier Narrows, the outlet of the San Gabriel Basin into the Central Basin. The Authority's mission has since been broadened to also address water conservation and supply issues. Groundwater provides 65% of the drinking water needs of 1.6 million residents in the Central Basin.

Following the identification of significant levels of volatile organic compounds in 1984, the San Gabriel Basin was declared a Superfund site. The southern border of the Superfund site is the Whittier Narrows Dam, constructed and operated by the Army Corps of Engineers. The dam is the northern boundary of the Montebello Forebay in the Central Basin. The dam was authorized by the 1941 Flood Control Act. In addition to flood control objectives, the dam is operated to facilitate the recharge of imported and reclaimed water, both at the dam site and the spreading facilities located downstream of the dam.

The Army Corps of Engineers was engaged in 1992 to address the Central Basin contamination issue because (1) EPA's CERCLA authority to address the contamination threat posed to the Central Basin is limited; (2) the migration of contaminated groundwater could have an impact on water conservation in the Central Basin; (3) the Whittier Narrows dam, the southern border of the Superfund site, and its operation by the Corps offers possible alternatives for increased water conservation through additional groundwater recharging with incidental water quality benefits; and (4) the Corps has existing authority to study this issue given the nexus between water conservation and groundwater contamination in this area.

The reconnaissance study for the Central Basin Groundwater Protection Project was authorized by the 1992 Water Resources Development Act. A feasibility study was authorized in the Energy and Water Development Appropriations Bill of 1994 appropriating $750,000 for the study.

The objectives of the study, to be completed this summer, are to (1) evaluate the effects of potential groundwater contamination on groundwater supplies in the Central Basin; and (2) investigate alternatives for implementing preventive or remedial measures to ensure water supplies that meet applicable local, state, and federal regulations and guidelines.

Expanded authorization for the feasibility study, if required, will be sought by the JPA this spring in the Water Resources Development Act of 1995. That authorization would seek to expand the authority of the Corps to incorporate water quality for this specific project, because of the nexus between water conservation and water conservation and water quality and supply.

The project will move to the feasibility study phase if the reconnaissance study finds there is a federal interest and a local sponsor is identified. These conditions are expected to be met. The feasibility study will evaluate alternate solution plans and fully define and recommend a project or projects.

The Southeast Water Coalition Joint Powers Authority would appreciate your continued support for this vital project study.

Thank you.

Mr. FAZIO. Nice to still be in Congress.

Mr. MYERS. He is the institutional memory on California Projects.

Mr. Gardener, which jurisdictions are participating in this JPA?

Mr. GARDNER. There are 14 cities which belong to the coalition, which will be affected by this, 1.6 million residents, which are endangered by this potential contamination. To simplify it—what is happening is we have a Superfund site and the migration is taking place outside of the site due to the lack of activity to preserve and correct that problem. We are very concerned that migration needs remedial action before the contamination is too severe.

Mr. RIGGS [presiding]. Thank you.

WEDNESDAY, MARCH 29, 1995.

LOS ANGELES COUNTY DRAINAGE AREA PROJECT

LOS ANGELES COUNTY DRAINAGE WATER CONSERVATION AND SUPPLY (HANSON AND LOPEZ DAMS; AND SANTE FE AND WHITTIER NARROWS DAM)

WITNESS

CARL BLUM, DEPUTY DIRECTOR, LOS ANGELES COUNTY PUBLIC WORKS

Ms. TENNIS. Turning now to Carl Blum, Los Angeles County Public Works Deputy Director.

Mr. BLUM. Good morning.

I am here to ask for your continued support for $11.367 million, which is included in the President's budget, for the second year of construction funding for the Corps of Engineers' Los Angeles County Area Drainage project. This project will protect an 82 square mile area of highly dense or highly populated area of Los Angeles, affecting 177,000 structures and over 500 million people. This project will prevent over $2 million in damage during a hundred-year storm.

I also ask for your continued support for two Los Angeles County drainage water conservation and supply feasibility studies. This is a continuation of studies under way by the Corps of Engineers. One is for Hansen and Lopez Dams at $400,000, and the other is for Santa Fe and Whittier Narrows Dam at $460,000. Both of those are in the President's budget also. Both projects involve better utilizing Corps of Engineers' dams to help conserve storm waters and help address the always critical water supply challenge in Southern California.

Thank you.

Mr. RIGGS. Thank you.

[The statement of Mr. Blum follows:]

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
A PRESENTATION OF THE FLOOD CONTROL NEEDS IN LOS ANGELES COUNTY
FEDERAL FISCAL YEAR 1996

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

BY
CARL L. BLUM, DEPUTY DIRECTOR
DEPARTMENT OF PUBLIC WORKS, LOS ANGELES COUNTY, CALIFORNIA

Summary of recommendations by Los Angeles County Department of Public Works concerning budget allocations to the U.S. Army Corps of Engineers.

> **We strongly support the California Water Commission's recommendation to the Committee for:**
>
> — **$11,367,000 to fund the construction phase of the Los Angeles County Drainage Area (LACDA) project.**
>
> — **$400,000 to continue the Los Angeles County Drainage Water Conservation and Supply Feasibility Study for Hansen and Lopez Dams.**
>
> — **$460,000 to continue the Los Angeles County Drainage Water Conservation and Supply Feasibility Study for Santa Fe and Whittier Narrows Dam.**

Mr. Chairman and Members of the Committee:

We appreciate your Committee's continued support of critical flood control and water conservation projects in Los Angeles County, California.

Floods are a part of the history of the Los Angeles area. Widespread floods have periodically devastated vast areas of the region and were responsible for taking of lives, damaging property and interrupting commerce and trade.

The U.S. Army Corps of Engineers and County of Los Angeles have built one of the most extensive flood control systems in the world. Construction of the major elements of the system began in the 1930s and consists of 20 major dams, 500 miles of open channels, and many

Development which occurred after World War II exceeded the projections the Corps designers made in the 1930s and has increased runoff to the point where, even in a moderate storm, the runoff could exceed the design capacity of portions of the system. For example, the lower Los Angeles River in the City of Long Beach can only provide protection from a 40-year flood and came close to overtopping in 1980. A storm of greater magnitude would have a tremendous impact, both personal and economic on Los Angeles County, the nation's second largest metropolitan area.

At the request of the County of Los Angeles, the U.S. Army Corps of Engineers analyzed the adequacy of the existing major flood control facilities serving the Los Angeles basin in the LACDA Review Study. In 1987, the Corps of Engineers completed the Problem Identification Phase of the Study. In 1990, the proposed Project received Congressional approval subject to a favorable report by the Chief of Engineers, and signature by the Secretary of the Army. In early 1992, the Corps began the Pre-construction Engineering and Design (PED) phase of this project. PED took three years with a total expenditure of $10.5 million.

The Final Report by the Corps identifies 100-year flood damages totaling $2.25 billion covering an 82-square-mile area which houses over 500,000 people. All these damages would occur in the heavily-urbanized Los Angeles basin, where adequate protection from a 100-year flood was previously provided.

This project is a critical modification to an existing facility. Obtaining funds to do the modification is critical for two reasons: first, because of the threat of flooding to over 1/2 million people; and, second, because FEMA is in the process of preparing Flood Insurance Rate Maps (FIRMs) for the area that would be affected by overflows from the lower Los Angeles River and Rio Hondo Channel. The financial impact on the affected property owners could reach as high as $131 million annually for Flood Insurance premiums. Any delay in construction causes a great financial hardship on thousands of people (who thought the existing river provided adequate protection) who will need to now buy flood insurance until such a project is completed.

An economic impact study done by the University of Southern California indicated that failure to construct the needed flood control measures will result in a job loss as high as 120,000 and an economic loss to the region of over $30 billion over a 10-year period.

The 1994-95 Fiscal Year approved budget includes money to complete the PED phase and provided "new start" funding for construction to begin.

We strongly support the California Water Commission's recommendation for $11,367,000 for the continuing construction phase of the LACDA Project.

Since their inception, the majority of the County's 15 dams have performed a dual role. In addition to flood control, our facilities have also been used to capture local storm runoff in order to assist in recharging our underground aquifers. With the exception of Whittier-Narrows Dam, Corps facilities are not used to assist in groundwater recharge activities. However, the recent six-year drought in California, coupled with increased demands on our existing water supply system have shown the need of integrating local resources to better manage our local water supplies.

While the County captures much of the water flowing within our flood control system, 280,000 acre-feet on average is lost to the Pacific Ocean each year from the Los Angeles River. Since 1985, the County has been working to reduce this loss by improving its existing water conservation system. The utilization of certain Corps facilities could be an integral part of this system by storing significant amounts of this lost runoff.

In 1993, Congress authorized the Corps to initiate a reconnaissance study to determine the viability of increased use of Corps facilities for water conservation. The study looked at establishing water conservation pools at Hansen, Lopez, and Santa Fe Dams, and increasing the existing water conservation pool at Whittier Narrows Dam. The utilization of these facilities would benefit many of the groundwater basins in the County. A secondary benefit would be realized by helping to dilute the groundwater pollution that currently threatens many water supply wells within these basins.

In May 1994, the Corps' reconnaissance study was completed. Preliminary benefit-cost ratios range from 2.2 to 19.0 for the four study sites, and the annual economic benefits range from $622,700 to $6,463,000. Overall, the four reservoirs could potentially conserve nearly 17,000 acre-feet annually of additional storm runoff, enough water to serve the annual needs of nearly 136,000 people. The study concluded that two feasibility studies were warranted: one for the Hansen Dam-Lopez Dam System, the other for the Santa Fe Dam-Whittier Narrows Dam system. The Corps began these feasibility studies in January 1995 with Los Angeles County as the local sponsor. Each feasibility study is to be conducted over a 3-year period at a total feasibility cost of $4.66 million ($2.24 million for the Hansen-Lopez System and $2.42 million for the Whittier Narrows-Santa Fe System). The County will contribute 50 percent of the necessary funds. The Corps has funding authority for the 1995 Fiscal Year, for $0.25 million for each study.

We strongly support the California Water Commission's recommendation to continue necessary funding in the 1996 Fiscal Year of $0.40 million for the Hansen-Lopez Study and $0.46 million for the Whittier Narrows-Santa Fe Study.

We appreciate your committee's continued support in addressing these critical concerns in the Los Angeles County area of Southern California.

WEDNESDAY, MARCH 29, 1995.

LOS ANGELES COUNTY DRAINAGE AREA PROJECT

WITNESSES

DIANE BOGGS, COUNCIL MEMBER, LOS ANGELES COUNTY DRAINAGE AREA ALLIANCE, CITY OF DOWNEY
JUNE YOTSUYA, ASSISTANT TO CITY MANAGER, CITY OF DOWNEY
GARTH GARDNER, COUNCIL MEMBER, CITY OF PICO RIVERA
DENNIS COURTEMARCHE, CITY MANAGER, CITY OF PICO RIVERA
HOWARD CHAMBERS, CITY MANAGER, CITY OF LAKEWOOD
DIANE MARTINEZ, COUNCIL MEMBER, CITY OF PARAMOUNT
DR. ESTHER CALDWELL, COUNCIL MEMBER, CITY OF PARAMOUNT

Ms. TENNIS. From the Los Angeles County Drainage Area Alliance, City of Downey, Diane Boggs, Council Member.

Ms. BOGGS. Thank you. Good morning. I have just a few condensed comments to make. My remarks have been submitted to you in writing.

And I would like to request that the committee fund the administration's request for $11.367 million for the Los Angeles County Drainage Area project. I would like to point out that the Los Angeles River and Rio Hondo River area is a catastrophe just waiting to happen. I fear it can happen at any time, and to delay would be very, very risky for the residents living there. Directly affected would be over a half a million people. These are the people who would actually be flooded. And the economic impact, should this occur, would be as much as $2.3 billion.

And I would like to point out that numerous alternatives have been studied and that this is the most cost-effective project to give the protection that is needed.

And I would like to thank you for your past and I am sure for your continued support. Thank you.

[The statement of Ms. Boggs follows:]

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
THE HONORABLE JOHN MYERS, CHAIRMAN

STATEMENT OF THE HONORABLE DIANE BOGGS COUNCILMEMBER, CITY OF DOWNEY, CALIFORNIA ON BEHALF OF THE LACDA ALLIANCE

MARCH 29, 1995

ON BEHALF OF THE LACDA ALLIANCE, I WOULD LIKE TO REQUEST THAT THE SUBCOMMITTEE FUND THE ADMINISTRATION'S BUDGET REQUEST OF $11.367 MILLION TO CONTINUE CONSTRUCTION OF THE LACDA FLOOD CONTROL PROJECT IN LOS ANGELES COUNTY.

THE LACDA ALLIANCE IS A GROUP OF SEVEN CITIES ALONG THE LOS ANGELES AND RIO HONDO RIVERS, WHICH STRONGLY SUPPORT THE CONSTRUCTION OF THIS ESSENTIAL PROJECT TO RESTORE ADEQUATE FLOOD PROTECTION TO OUR AREA. SIGNIFICANT PORTIONS OF LOS ANGELES COUNTY'S POPULATION FACE DEVASTATING LOSSES IN THE EVENT OF A MAJOR STORM AND RESULTING FLOODING. AS MUCH AS 82 SQUARE MILES IN THE LOWER LACDA BASIN WOULD BE INUNDATED IN A 100-YEAR FLOOD, AFFECTING ABOUT 500,000 PEOPLE AND ABOUT 177,000 STRUCTURES IN 11 CITIES, AND CAUSING UP TO $2.3 BILLION IN DAMAGES.

WE NEED THE LACDA PROJECT FIRST AND FOREMOST FOR PUBLIC SAFETY. WE ALSO NEED THE LACDA PROJECT TO PREVENT AN ECONOMIC DISASTER. WITHOUT ADEQUATE PROGRESS TOWARD RESTORING THE FLOOD PROTECTION SYSTEM, MUCH OF LOS ANGELES COUNTY WOULD BECOME SUBJECT TO INSURANCE AND BUILDING RESTRICTIONS THAT ARE ESTIMATED TO COST THE REGION MORE THAN $35 BILLION DOLLARS OVER A 10-YEAR PERIOD, AND RESULT IN THE LOSS OF MORE THAN 170,000 JOBS.

THE CORPS OF ENGINEERS HAS CONSIDERED NUMEROUS ALTERNATIVES AND THIS PROJECT, WHICH IS SCHEDULED TO START CONSTRUCTION THIS

SUMMER, IS THE MOST COST-EFFECTIVE ALTERNATIVE THAT WILL PROVIDE THE ADEQUATE LEVEL OF FLOOD PROTECTION.

WE APPRECIATE YOUR PAST AND CONTINUED SUPPORT. THANK YOU.

Mr. RIGGS. Do you know what the President has proposed in his budget?

Ms. BOGGS. Yes, he has proposed the $11.367 million right now.

Mr. RIGGS. And who is the local, for my edification, who is the local sponsor of this project?

Ms. BOGGS. The Los Angeles County. And this, I am representing the LACDA Alliance, which is a city group of the cities that are affected down the river channels.

Mr. RIGGS. I see. Thank you.

Ms. BOGGS. Thank you.

WEDNESDAY, MARCH 29, 1995.

SANTA ANA RIVER MAINSTEM PROJECT

SEVEN OAKS AND PRADO DAMS WATER CONSERVATION

WITNESSES

WILLIAM ZAUN, DIRECTOR OF PUBLIC WORKS, ENVIRONMENTAL MANAGEMENT AGENCY, COUNTY OF ORANGE

HERBERT NAKASONE, MANAGER OF FLOOD PROGRAM, COUNTY OF ORANGE

DONALD J. MARTINSON, EXECUTIVE DIRECTOR, SANTA ANA RIVER FLOOD PROTECTION AGENCY

Ms. TENNIS. From the County of Orange, we have William Zaun, Director of Public Works, Environmental Management Agency.

Mr. ZAUN. Mr. Chairman and Members, I am William Zaun, Director of Public Works for Orange County, California, representing the Orange County Flood Control District, one of three local sponsors of the Santa Ana River Mainstem project.

We are most appreciative of the long-standing support of this subcommittee for appropriations for the construction of the Santa Ana River mainstem. You have heard this morning that the project is under construction. It is on time; it is under budget. And local sponsors have met their obligations right along on this project.

You are undoubtedly aware of the fiscal crisis of the County of Orange. It is important for you to understand that the Orange County Flood Control District is a separate legal entity and is not bankrupt. The district has more than sufficient funds to meet its obligations to support the administration's fiscal 1996 appropriation request. We respectfully request your support of the $70 million requested by the President for fiscal 1996 to continue construction of the Santa Ana River Mainstem Project, and I thank you very much for the opportunity to be here today.

Mr. RIGGS. Thank you.

Ms. TENNIS. Thank you.

[The statement of Mr. Zaun follows:]

Santa Ana River Mainstem

A Corps of Engineers Project
Fiscal Year 1996

UNITED STATES
HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER

HONORABLE JOHN MYERS, CHAIRMAN

Statement By
William L. Zaun, Orange County Director of Public Works
For The Orange County Flood Control District
State Of California

A Local Sponsor

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER
Honorable John Myers, Chairman

A. SUMMARY

Mr Chairman and Members, the Orange County Flood Control District (OCFCD), Orange County, California requests your support of the funding requested by the President to maintain the planned construction schedule for the Santa Ana River Mainstem Project (SARP) during Fiscal Year 1996.

As this Subcommittee is keenly aware, the U.S. Army Corps of Engineers considers the Santa Ana River to be the most critical flood threat in the West. The most severe flood likely to occur could impact 3 million people, kill 3,000 people and destroy property valued at more than $15 billion in three urban Southern California Counties.

The Flood Control Districts of Orange, Riverside and San Bernardino Counties have entered into a Local Cooperation Agreement with the United States Department of the Army to provide a minimum of 25% of the total SARP cost. Local Sponsors' costs are now estimated to equal 42% of the total project cost of $1.333 billion. OCFCD's share is about $509 million; to date the District has allocated $273 million for the SARP.

OCFCD has expended about $105 million toward its responsibilities to provide cash, land and relocations to make way for construction of the SARP. Local Sponsors have obtained possession of about 1,550 acres of land for mitigation and 1,500 acres for construction of the new Seven Oaks Dam. Electric transmission lines impacted by the new dam have been relocated and the relocation of a hydroelectric plant has been arranged.

Land has been acquired and utilities have been relocated to support the U.S. Army Corps of Engineers accelerated construction schedule to improve the lower Santa Ana River Channel. The Talbert Channel ocean outlet has been relocated and the Santa Ana River ocean outlet widened. Approximately 12 miles of channel have been improved to increase floodwater carrying capacity. Four bridges have been lengthened to span the widened river. Ninety-two acres of degraded wetlands at the mouth of the Santa Ana River have been acquired and are being restored to mitigate project impacts. The OCFCD is developing a habitat management plan for preservation of open space and wildlife habitat in the Santa Ana Canyon below Prado Dam.

Right-of-way engineering is in progress for acquisition of about 1,600 acres of land for the Prado Dam feature. This land is required for the larger reservoir and includes residences, dairies, farming operations and citrus groves. Plans are also being prepared for the required relocation of State Route 71.

Your Subcommittee is undoubtedly aware of the bankruptcy of the County of Orange and may have questions regarding the affect of the bankruptcy on the OCFCD and the SARP. First, let me assure you that the OCFCD is not bankrupt. It is a separate legal entity with revenue from the proceeds of taxes which may only be used for flood control purposes. OCFCD funds have historically been deposited with and invested by the Orange County Treasurer. This was the case at the time the County of Orange declared bankruptcy. As a result of the County bankruptcy, the OCFCD will likely lose about $40 million of the funds it had set aside for the SARP. This loss will have no short term impact on the progress of the SARP, but may result in delaying the acquisition of lands required for the full implementation of the Prado Dam feature of the SARP.

The Local Sponsors including the OCFCD are continuing to provide cash contributions, acquire property and perform relocations to enable the U.S. Army Corps of Engineers to maintain its construction schedule for Fiscal Year 1996. The support of the Committee on Appropriations, Subcommittee on Energy and Water Development for appropriations to continue construction of the SARP is urged to provide citizens of Orange, Riverside and San Bernardino Counties with urgently needed flood protection as early as possible.

B. FLOOD POTENTIAL - THE SANTA ANA RIVER

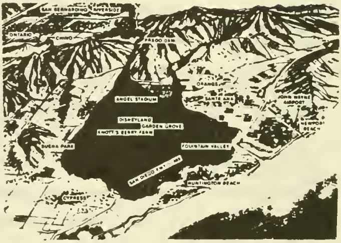
- ☐ Headwaters in San Bernardino Mountains, 75 miles to Pacific Ocean.
- ☐ Drains 3,200 square miles in Orange, Riverside and San Bernardino Counties in Southern California.
- ☐ Flows through Cities of Colton, Riverside, Norco, Anaheim, Santa Ana, Orange, Fountain Valley, Costa Mesa and Huntington Beach.

FLOODS IN ORANGE COUNTY

- ☐ 1938, greatest flood of this century, flooded the entire northern half of Orange County. Almost all bridges destroyed including damages to agricultural land which is now urbanized.
- ☐ 1862, greatest flood on record, approximating the Corps Standard Project Flood.

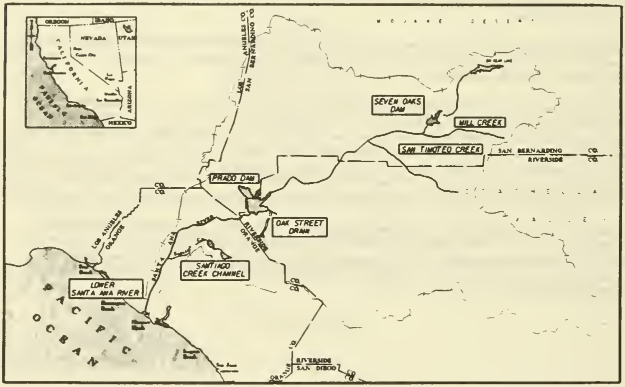
ESTIMATED DAMAGE

- ☐ Standard Project Flood would exceed capacity of Prado Dam.
- ☐ LEVEES WOULD BE BREACHED; flooding 110,000 acres from Anaheim to the ocean could impact 3 million people, kill 3,000 people and destroy property valued at $15 billion.
- ☐ MAJOR TRANSPORTATION CORRIDORS INTERRUPTED: San Diego, Garden Grove, Santa Ana, Costa Mesa and Orange Freeways. Railroad Stations and Track
- ☐ MAJOR PUBLIC FACILITIES WOULD BE INUNDATED: Hospitals, Shopping Centers, Colleges, Sanitation Plants, Stadiums, Disneyland, Knotts Berry Farm and Hotels.



C. SANTA ANA RIVER MAINSTEM PROJECT DESCRIPTION

The SARP is comprised of several features in Riverside, San Bernardino and Orange Counties.



MAJOR FEATURES

LOWER SANTA ANA RIVER

☐ ESTIMATED COST $384 MILLION ESTIMATED COMPLETION: YEAR 2000
☐ IMPROVE 23-MILE CHANNEL FROM PRADO DAM TO THE PACIFIC OCEAN
☐ INCREASE CHANNEL CAPACITY FROM 28,000 CFS TO 47,000 CFS AT PACIFIC OCEAN
☐ RESTORE/ENHANCE 92 ACRE (8 ACRES MITIGATION) WETLANDS
☐ ACQUIRE 1,123 ACRES OF CANYON LANDS TO ENSURE SAFE RELEASES FROM PRADO AND PROVIDE OPEN-SPACE HABITAT
☐ RELOCATE 60 VARIOUS UTILITY LINES AND 15 OIL WELLS/LINES
☐ MODIFY 31 BRIDGES

☐ PRADO DAM

☐ ESTIMATED COST: $472 MILLION ESTIMATED COMPLETION: YEAR 2000
☐ RAISE THE DAM FROM ELEVATION FROM 566 TO 594.4 FEET, (INCREASE TO 28.4 FEET)
☐ INCREASE RESERVOIR AREA FROM 6,695 ACRES TO 10,256 ACRES
☐ IMPOUNDMENT FROM 212,000 ACRE-FEET TO 362,000 ACRE-FEET
☐ INCREASE CAPACITY OF OUTLET GATES FROM 9,200 CFS TO 30,000 CFS
☐ ACQUIRE ABOUT 1,600 ACRES OF NEW FLOWAGE EASEMENTS
☐ RELOCATE OR PROTECT 30 VARIOUS UTILITY LINES
☐ RAISE STATE HIGHWAY ROUTE 71

☐ SEVEN OAKS DAM

☐ ESTIMATED COST: $364 MILLION ESTIMATED COMPLETION: 1997
☐ 550-FEET-HIGH, EARTH-ROCKFILL DAM, 2,980 FEET LONG
☐ GROSS CAPACITY OF 145,600 ACRE FEET
☐ REDUCES PEAK INFLOW OF 85,000 CFS TO A PEAK OUTFLOW OF 7000 CFS
☐ REQUIRES ABOUT 2,900 ACRES OF LAND OR EASEMENTS
☐ RELOCATE POWERHOUSE, FLUME & TRANSMISSION LINE; SPREADING BASINS, WATERWELLS

D. ORANGE COUNTY FLOOD CONTROL DISTRICT WORK SUMMARY

Since Congressional Authorization of the SARP in 1986 the OCFCD, as the Local Sponsor has performed substantial land acquisitions and relocations as part of its participation. To date, the OCFCD has expended about $105 million on the SARP. This work along with the U.S. Army Corps of Engineers work is summarized below.

LOWER SANTA ANA RIVER

The U.S. Army Corps of Engineers has completed approximately 12 miles of channel improvements from the River's ocean outlet to the City of Orange. For project mitigation, over 92 acres have been designated as marshland restoration areas. The Talbert Channel outlet has been relocated a thousand feet up the coast to provide for a wider Santa Ana River outlet. A new bridge was completed over the relocated Talbert Channel to restore State Beach parking lost when the new outlet was installed.

The OCFCD has also initiated preparation of the Santa Ana Canyon Habitat Management Plan and is working with the U.S. Army Corps of Engineers on the development of a recreation plan to increase recreational use of the Santa Ana River Trail. The OCFCD has been pushing ahead to help the U.S. Army Corps of Engineers expedite the Lower Santa Ana River construction schedule by acquiring over 112 acres of rights-of-way and arranged for the relocation of over 60 utility lines and 15 oil wells. The Pacific Coast Highway Bridge in Newport Beach, the Hamilton-Victoria Bridge in the Cities of Costa Mesa and Huntington Beach, Harbor Blvd. Bridge in Santa Ana and Katella Avenue Bridge in the city of Anaheim have been widened to 8-lanes and lengthened to accommodate the widened Santa Ana River.

SEVEN OAKS DAM

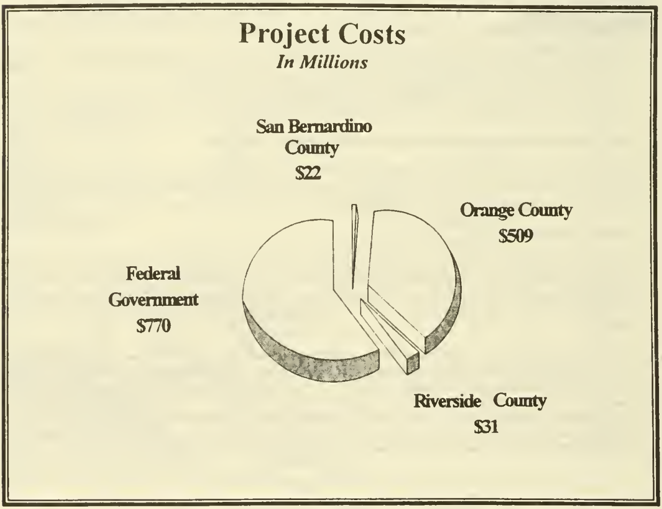
The U.S. Army Corps of Engineers has completed construction on the intake structure, gate chamber and diversion tunnel. Construction on the dam embankment, outlet works, cofferdam, approach channel and access roads are under way. Southern California Edison has completed the relocation of transmission towers. Local Sponsors have acquired possession of 1,536 acres for project mitigation and an additional 1,364 acres for borrow sites, haul roads and dam site. They have also initiated development of a mitigation lands management program to facilitate protection and propagation of an endangered species. The OCFCD and the Southern California Edison Company have arranged the relocation of a hydroelectric plant and related flume out of the new Seven Oaks Dam reservoir area.

PRADO DAM

OCFCD has initiated a program for acquisition of about 400 parcels under 260 ownerships. Survey and right-of-way engineering are underway; hardship claim procedures have been established and two hardship properties have been acquired. Preparation of plans for the relocation of State Route 71 is under way to prepare for the U.S. Army Corps of Engineers 1997 construction start.

E. PROJECT COSTS

The cost of the SARP is currently estimated by the U.S. Army Corps of Engineers to be $1.333 billion.
Allocations of project costs amongst the Federal Government and the Local Sponsors is illustrated by the chart below.



WEDNESDAY, MARCH 29, 1995.

SANTA ANA RIVER MAINSTEM PROJECT

SEVEN OAKS AND PRADO DAMS WATER CONSERVATION

MISSION ZANJA CREEK

SAN SEVAINE CREEK WATER PROJECT

SAN ANTONIO CREEK

WITNESSES

KENNETH MILLER, DIRECTOR, DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL, COUNTY OF SAN BERNARDINO

PAT CRAIG, WASHINGTON, D.C. REPRESENTATIVE, COUNTY OF SAN BERNARDINO

Ms. TENNIS. Turning now to the County of San Bernardino, Kenneth Miller, Director.

Mr. MILLER. Mr. Chairman, members of the committee, it is—I appreciate the opportunity to be with you again today. As far as San Bernardino County, the Santa Ana River Mainstem project does continue to be the highest priority project for providing flood protection in our county, as well as the adjoining counties of Riverside and Orange. As Mr. Zaun said, the construction has been under way since 1990, and in all of the county areas it is on schedule and within budget.

In San Bernardino County, I am pleased to report that the outlet tunnel for the Seven Oaks Dam has been completed and functional during the current winter storms, while the main dam embankment construction is well under way.

Additional Corps projects for which we are asking your support are the Seven Oaks Dam water conservation feasibility study, a project to enhance water resources in our arid region, the Mission Zanja Creek flood protection; and completion of a reconnaissance study and initiation of a feasibility phase for San Antonio Creek.

In addition, we would appreciate your continued support of the Bureau of Reclamation's Small Watershed Project Loan program. The Santa Ana project, the Seven Oaks project, and the San Antonio project are currently in the President's budget. And for further information, during the current winter storms, our counties incurred about $11 million in damage to date. Thank you.

Mr. RIGGS. Thank you.

[The statement of Mr. Miller follows:]

COUNTY OF SAN BERNARDINO FLOOD CONTROL PROGRAM
F.Y. 1995–96

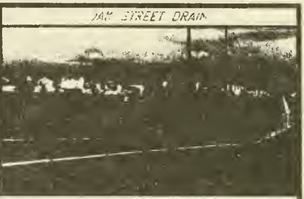
Presented to

U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON APPROPRIATIONS
Subcommittee for Energy and Water Development
Honorable JOHN MYERS, Chairman

[illegible]

[illegible] OAKS DAM N.E. SITE [illegible]

OAK STREET DRAIN



SEVEN OAK DAM ROCK [illegible]

Including

Corps of Engineers Project

SANTA ANA RIVER MAINSTEM

and

Bureau of Reclamation Water Project

SAN SEVAINE CREEK

County of San Bernardino

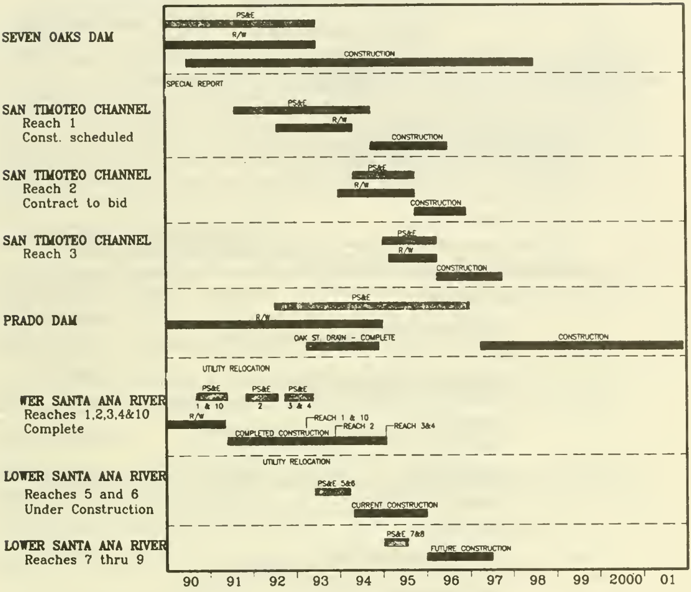
SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

State of California

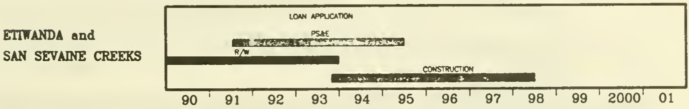
1939

CONG95A

SANTA ANA RIVER MAINSTEM CONSTRUCTION SCHEDULE



SAN SEVAINE CREEK WATER PROJECT CONSTRUCTION SCHEDULE



SARCONST – FEBRUARY 95

COUNTY OF
SAN BERNARDINO

County Administrative Office

385 North Arrowhead Avenue, 5th Floor
San Bernardino, CA 92415-0120
(909) 387-5418
Fax (909) 387-5430

JAMES J. HLAWEK
County Administrative Officer

BOARD OF SUPERVISORS
Marsha Turoci, *Chairman* — *First District*
Jon D. Mikels — *Second District*
Barbara Cram Riordan — *Third District*
Larry Walker — *Fourth District*
Jerry Eaves — *Fifth District*

March 29, 1995

United States House of Representatives
Chairman, Committee on Appropriations
Subcommittee on Energy and Water Development
Washington, D.C.

Attention: Congressman John Myers

Dear Chairman Myers:

The Board of Supervisors of San Bernardino County, State of California, appreciates the opportunity to bring the following flood control and water conservation projects to your attention for consideration in the FY 1995-1996 Federal Budget.

A. Corps of Engineers

1.	Santa Ana River Mainstem Construction of Seven Oaks Dam, Lower Santa Ana River and San Timoteo Creek.	70,249,000
2.	Seven Oaks Dam Water Conservation Study Continue Conservation Feasibility Study.	265,000
3	San Antonio Creek Complete reconnaissance study and initiate feasibility study of flood control.	350,000
4	Mission Zanja Creek Conduct a feasibility study and initiate design of an inlet expansion plan.	300,000

B Bureau of Reclamation

1.	San Sevaine Creek Water Project PL84-934 Small Watershed Project Loan Program Add 250,000 to recommended FY 1995-1996 fiscal budget to start federal participation on project.	250,000

The Board once again wishes to express its deep appreciation for your past and present support of these priority programs in San Bernardino County and also Orange and Riverside Counties.

Sincerely,

Marsha Turoci

MARSHA TUROCI
Chairman
Supervisor, First District

SANTA ANA RIVER MAINSTEM PROJECT

Project Description

The Santa Ana River Project includes seven interdependent features. Mill Creek Levee, Oak Street Drain, and Reaches 1, 2, 3, 4, and 10 of the Lower Santa Ana River are complete. Additionally, the completion of Seven Oaks Dam, San Timoteo Creek, Prado Dam, Santiago Creek and the Lower Santa Ana River features will provide (a) the necessary flood protection from the standard project overflow within Orange, Riverside and San Bernardino Counties; (b) enhancement and preservation of marshlands and wetlands for endangered waterfowl, fish and wildlife species; (c) recreation amenities; and (d) flood plain management of the 30 miles of Santa Ana River between Seven Oaks Dam and Prado Dam. The Mainstem project is scheduled for completion by the year 2001.

San Bernardino County Features Status

Seven Oaks Dam: Intake structure excavation, Abutment stripping and Outlet Works/Diversion Tunnel contract is complete. Embankment and Spillway construction contract was awarded in March 1994.

Mill Creek Levee: Project was completed in April 1992.

San Timoteo Creek: San Timoteo Creek/Phase I was awarded in September 1994. Construction will begin in March 1995. Advertisement for construction bids for Phase II will be in June 1995.

Funding Required

To continue construction of the Mainstem Project in FY 1995/96, the Corps of Engineers will require $85,749,000 ($12,000,000 carry over from FY 94/95 + $70,249,000 Budget for FY 1995/96) in federal funding along with cash contributions of $3,500,000, lands, and various services from local sponsor.

PROJECT AUTHORIZED: Public Law 94-587, Section 109, Approved October 22, 1976
Public Law 99-662, Water Resources Development Act of 1986

TOTAL PROJECT COST: $1.4 billion - Includes $473 million local share

PRESIDENT'S BUDGET REQUIREMENT Fiscal Year 1995/96: $70,249,000

The State of California Water Commission recommended continued support of this project on March 3, 1995.

REQUESTED ACTION: Approval of $70,249,000 for Santa Ana River Mainstem, including Seven Oaks Dam and San Timoteo Creek projects in San Bernardino County.

SANTA ANA RIVER MAINSTEM PROJECT

BERNARDINO COUNTY:

FEATURE	ACTIVITY	REQUIRED FUNDING FY 95/96
SEVEN OAKS DAM	Construction; engineering and design; project management	$ 50,304,000
SAN TIMOTEO CREEK CHANNEL	Engineering, design plans and specifications, continue construction (Includes $12 million FY 94/95 Carryover)	$ 17,000,000
ADDITIONAL DOWNSTREAM FEATURES:		
LOWER SANTA ANA RIVER (Marshland and channels)	Fish and wildlife facilities; construction; engineering and design	$ 18,445,000
S.A.R. MAINSTEM PROJECT	Required Project Funds	$ 85,749,000
	Non-federal contribution (required in addition to LERRD's)	$ 3,500,000
	FEDERAL CONTRIBUTION	$ 82,249,000
	Less FY 94/95 carryover	$ -12,000,000

REQUIRED F.Y. 95/96 FUNDS FOR SANTA ANA RIVER MAINSTEM $70,249,000

A Continuing Partnership

INTAKE TOWER
The base of the planned intake tower, visible below the bench cut rock face, is located at the upstream end of the outlet works.

SPILLWAY
To the east of the dam, the spillway will pass flows before they top the completed 555' high earth dam structure. The excavation site is visible above Warm Springs Road.

APPROACH CHANNEL
Temporary channel takes low flows past the coffer dam into the outlet works.

COFFER DAM
Protects the main embankment from upstream flows, and dewaters via a series of pumps which discharge into the approach channel.

ROCK TOE OF DAM
Construction has begun on the foundation of the dam.

SEVEN OAKS DAM WATER CONSERVATION STUDY

Project Background

Storms of the early 1900's, which caused severe flooding in Southern California, sparked the beginning of flood control efforts in that region. Federal, State and local response to these events resulted in legislation to regulate and direct project construction for the protection of the growing communities of the southern counties. Prado Dam and Basin, located in the Counties of San Bernardino and Riverside, was the first project constructed to control flooding in the lower Santa Ana River area of Orange County. Prado Dam was completed in 1940.

Over the years water conservation has become increasingly important to agricultural and urban interests. Prado Dam and Basin has functioned for many years as both a conservation and flood control facility. A conservation study recently completed by the Corps of Engineers investigated the benefits and impacts of maximizing water conservation at Prado under current conditions, that is, prior to dam and reservoir enlargement. Under that study the Los Angeles District of the U.S. Army Corps of Engineers recommended allowing the non-flood season water conservation pool to rise from the current elevation of 490 feet mean sea level to elevation 505 feet.

Project Description

In 1992, the Seven Oaks and Prado Dams Water Conservation Study was completed. A determination from that reconnaissance study concluded that no additional authority was required for an operational modification to Prado Dam for a change in seasonal water conservation. The feasibility phase for water conservation at Seven Oaks Dam started in November 1993 and is the focus of this request for continued funding.

The Seven Oaks Dam Water Conservation Study, Feasibility Phase, will concentrate on the viable water conservation alternatives described in the reconnaissance study. The Feasibility Study will include the following tasks: 1) public involvement; 2) environmental studies; 3) hydrologic studies; 4) geotechnical studies; 5) study management; 6) institutional studies; 7) plan formulations; 8) economic study; 9) design studies; 10) survey and mapping; 11) cost estimates; 12) Fish & Wildlife studies; 13) recreation studies; 14) cultural resources studies; 15) real estate studies; 16) report preparations; and 17) review.

The study progress and intermediate results will be reviewed and approved on a quarterly basis.

Funding Request

For the continuation of this study in FY 1995/96, the San Bernardino County Flood Control District requests the appropriation of $265,000 as the estimated budget.

The California Water Commission recommended support of this study on March 3, 1995, in the amount of $265,000.

REQUESTED ACTION: Approval of $265,000 to conduct a feasibility study to assess physical, fiscal, environmental and public impacts of a water conservation program for the Seven Oaks Dam.

SAN ANTONIO CREEK CHANNEL RECONNAISSANCE STUDY

Project Description - The San Antonio Creek Channel was constructed by the Corps of Engineers in the 1950's. Its watershed encompasses an area of approx. 89 sq. miles at the western border of San Bernardino County. Most of this channel is concrete lined or improved with rock slope protection. Approximately one-third of the primarily undeveloped watershed is tributary to the San Antonio Dam, which is located about 11 mi. downstream from the headwaters of the watershed.

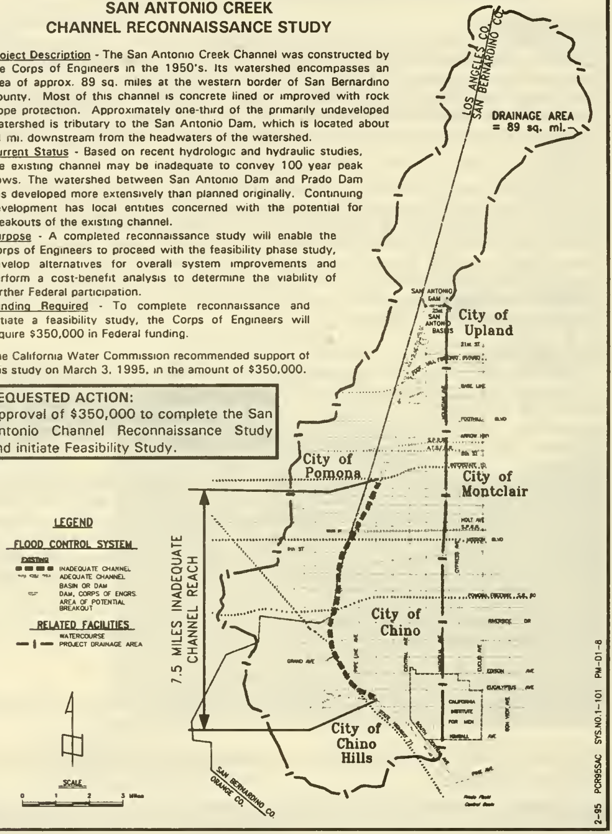
Current Status - Based on recent hydrologic and hydraulic studies, the existing channel may be inadequate to convey 100 year peak flows. The watershed between San Antonio Dam and Prado Dam has developed more extensively than planned originally. Continuing development has local entities concerned with the potential for breakouts of the existing channel.

Purpose - A completed reconnaissance study will enable the Corps of Engineers to proceed with the feasibility phase study, develop alternatives for overall system improvements and perform a cost-benefit analysis to determine the viability of further Federal participation.

Funding Required - To complete reconnaissance and initiate a feasibility study, the Corps of Engineers will require $350,000 in Federal funding.

The California Water Commission recommended support of this study on March 3, 1995, in the amount of $350,000.

REQUESTED ACTION:
Approval of $350,000 to complete the San Antonio Channel Reconnaissance Study and initiate Feasibility Study.



MISSION ZANJA CREEK STUDY

Project Background

Mission Zanja Creek, also known as the Mill Creek Zanja and Mission Storm Drain, was origina built by native American Indians under the direction of Franciscan Padres as a ditch for water supply in 1819. The water diverted from Mill Creek supported the San Bernardino Asistencia and surrounding farms and ranches. The 12-mile-long ditch, which terminates at the Santa Ana River, essentially follows the same course today that the Indians carved out over 170 years ago. As the area has developed and the water supply technology changed, the use of the Zanja has changed from water supply to a flood control and drainage channel.

Flows in Mission Zanja Creek originate in the Crafton Hills east of Redlands, and traverse westerly through the cities of Redlands, Loma Linda, and San Bernardino to the Santa Ana River. The drainage basin is shaped like a half circle with a length of about 12 miles and an average width of about three miles. The total drainage area is about 25 square miles.

Project Description

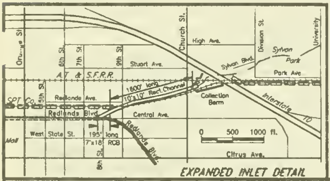
The reconnaissance study, completed in February 1994, considered the past work performed by the Corps of Engineers and expanded that effort to include the entire upper and lower ends of the drainage area not previously studied. Two features of this study, the Reservoir Canyon detention basin and expanded (modified) inlet, appear to be economically justified and warrant further study.

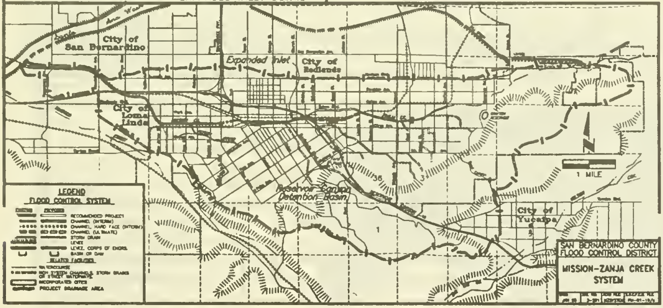
Funding Required

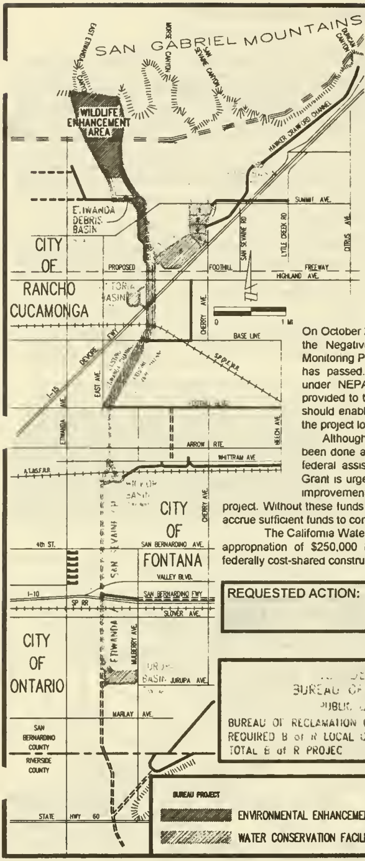
The Expanded Inlet Plan is estimated at $1,285,000 while the cost of the Reservoir Canyon Detention Plan is estimated at $4,890,000. The Corps of Engineers will require $300,000 to conduct feasibility study and initiate design of an inlet expansion plan for flood control under Section 205 of the Flood Control Act of 1948.

The California Water Commission recommended support of this study on March 3, 1995, in the amount of $300,000.

REQUESTED ACTION:
Approval of $300,000 for feasibility study on detention basin and channel inlet features. Support funding of Continuing Authorities Program







Project Description:

The San Sevaine Creek Water Project, as proposed, will provide environmental enhancements, water conservation and flood control facilities in the western portion of the San Bernardino County.

A 98-acre site is being set aside to protect a sensitive plant community and wetlands and provide wildlife enhancement. In addition, several water conservation basins will percolate an estimated 25,000 acre-feet of storm water runoff per year into the Chino Groundwater Basin benefiting agricultural, municipal and water users in the Valley. This project will create water storage and conservation facilities which will provide approximately 4341 acre-feet of benefit and help reduce the need for purchasing water.

Project Status:

On August 23, 1994, the Initial Study required under CEQA was filed for public comment. On October 25, 1994, the County Board of Supervisors certified the Negative Declaration under CEQA and the Mitigation Monitoring Plan. The appeal period for challenges to that action has passed. The Draft Environmental Assessment required under NEPA and the Draft Loan Application Report were provided to the Bureau on August 18, 1994. These documents should enable the Bureau to complete its reviews and process the project loan and grant under the SRPA.

Although some levee, channel and interim basin work has been done at various locations on this major drainage system, federal assistance in the form of a Small Project Loan and Grant is urgently needed to allow for the construction of major improvements that will provide a fully integrated and functional project. Without these funds it will be many decades before local interests can accrue sufficient funds to continue this vital project.

The California Water Commission recommended on March 3, 1995, an appropriation of $250,000 be included in the FY 1995/96 budget to start federally cost-shared construction of the project.

REQUESTED ACTION:	**Approval of $250,000 for FY 1995/96 to start federal participation on the San Sevaine Creek Water Project.**

U.S. DEPARTMENT OF INTERIOR
BUREAU OF RECLAMATION SMALL PROJECT
PUBLIC LAW 84-984 AS AMENDED SRPA

BUREAU OF RECLAMATION GRANT CONTRIBUTION	$34,000,000
REQUIRED B of R LOCAL CONTRIBUTION LOW INTEREST LOAN	$17,900,000
TOTAL B of R PROJECT	$51,900,000

SAN BERNARDINO COUNTY

SAN SEVAINE CREEK WATER PROJECT

AR 14, 1995 / PM-01-92/env

ACAD FILE PCF

U.S. ARMY CORPS OF ENGINEERS

COUNTY OF ORANGE CALIFORNIA

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT 1939 CALIFORNIA

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

A Cooperative Effort

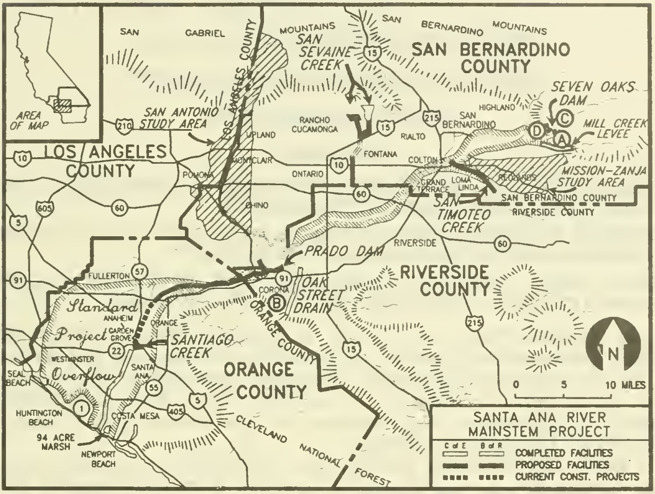
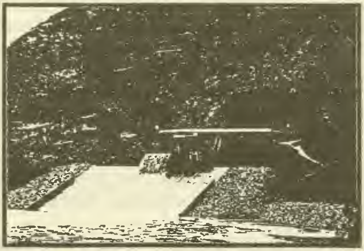


Photo locations from front cover shown on map above

- Ⓐ Clearing of core contact surface of left abutment.
- Ⓑ Completed Oak Street Drain portion of SAR Mainstem in Riverside County
- Ⓒ Temporary approach channel and tower base for intake structure; Side pipe drains sump below coffer dam.
- Ⓓ Placement of rock toe, downstream side of main embankment.



Discharge from outlet works during Jan 1995 storms

Mr. RIGGS. Is the fact that the project is under way help reduce the damage resulting from this winter's floods?

Mr. MILLER. I think we have seen that on the project, that all the phases that are complete or well under way did not incur any damage and did function as they were intended to function.

Mr. RIGGS. Thank you.

WEDNESDAY, MARCH 29, 1995.

SANTA ANA MAINSTEM PROJECT

SANTA ANA RIVER-NORCO BLUFFS

WHITEWATER RIVER

WITNESSES

JOHN TAVAGLIONE, SUPERVISOR, RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

KENNETH EDWARDS, CHIEF ENGINEER, RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DAVID ZAPPE, ASSISTANT CHIEF ENGINEER, RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Ms. TENNIS. From the County of Riverside Flood Control and Water Conservation District, we have John Tavaglione, Supervisor.

Mr. TAVAGLIONE. Honorable Chairman, members of the committee, I am John Tavaglione, a member of the Riverside County Board of Supervisors and Chairman of the County Flood Control and Water Conservation District.

I would like to thank you for the opportunity to present to you our request for appropriations for Corps of Engineers projects. Our colleagues and neighbors from both the Orange and San Bernardino Counties have already expressed their strong support for the Santa Ana River mainstem, of which we are a sponsor and partner. I would like to say that a portion of that project has been completed through a district that I represent, the Oak Street Drain Project in the City of Corona, and held up very well in the recent flooding.

Also, I would like to support the President's request for appropriations for $370,000 for the Whitewater Basin study, which is a flood control basin in the desert area near Palm Springs, east of Riverside.

One project that is not showing this year in the President's budget is the Santa Ana River-Norco Bluffs study which has been appropriated in the past. We have a 50/50 cost sharing agreement with the Corps of Engineers for a $1.8 million study.

Norco Bluffs is an area east of—or excuse me, west of Riverside, City of Riverside. It is an area that goes along the Santa Ana River that is in high danger of homes slipping down from the bank. And we would like to continue this study. To date, $550,000 has been appropriated in the past, and we need another $375,000, so we respectfully request that you include that in your appropriations for the fiscal year 1996 budget.

Once again, we would like to thank you for the opportunity to be here today and would respectfully request your consideration.

Mr. RIGGS. Thank you, Supervisor.

[The statement of Mr. Tavaglione follows:]

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

STATEMENT REGARDING FISCAL YEAR 1996 APPROPRIATIONS

for

SANTA ANA RIVER MAINSTEM
SANTA ANA RIVER AT NORCO BLUFFS
WHITEWATER RIVER BASIN

TO: United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development

Honorable John Myers, Chairman

SUMMARY RECOMMENDATIONS

PROJECT	FUNDING REQUEST
SANTA ANA RIVER - MAINSTEM Construction - General	$70,240,000
SANTA ANA RIVER - NORCO BLUFFS Feasibility Study	$375,000
WHITEWATER RIVER BASIN, CALIFORNIA Feasibility Study	$370,000

Respectfully submitted,

JOHN TAVAGLIONE, Chairman
Board of Supervisors
Riverside County Flood Control
and Water Conservation District

BOARD OF SUPERVISORS

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

RESOLUTION NO. F95-11

SUPPORTING FEDERAL APPROPRIATIONS FOR FLOOD CONTROL PROJECTS FOR FISCAL YEAR 1996

WHEREAS, the United States House of Representatives Committee on Appropriations, Sub-Committee on Energy and Water Development, and the United States Senate Committee on Appropriations, Sub-Committee on Energy and Water Development are holding hearings on March 29, 1995 to consider appropriations for Flood Control and Reclamation Projects in California for Fiscal Year 1996; and

WHEREAS, the Riverside County Flood Control and Water Conservation District (District) supports the continuation of construction of the Santa Ana River Mainstem project, the continuation of the feasibility studies of the flooding and bank destruction along the Santa Ana River at Norco Bluffs, California and the feasibility studies for flood control in the Whitewater River Basin in Riverside County, California; now, therefore,

BE IT RESOLVED by the Board of Supervisors of the Riverside County Flood Control and Water Conservation District in regular session assembled on March 14, 1995, that they support appropriations by Congress for Fiscal Year 1996 for the following projects:

U.S. ARMY CORPS OF ENGINEERS

General Investigations and Surveys Santa Ana River at Norco Bluffs	$375,000
Whitewater River Basin, California	$370,000
Construction - General Santa Ana River Mainstem	$70,249,000

BE IT FURTHER RESOLVED that the General Manager-Chief Engineer is directed to distribute certified copies of this resolution to the Secretary of the Army, Members of the House of Representatives Committee on Appropriations and Sub-Committee on Energy and Water Development, the Senate Committee on Appropriations and Sub-Committee on Energy and Water Development, and the District's Congressional Delegation - Senators Diane Feinstein an Barbara Boxer, and Congressmen Ron Packard, Ken Calvert and Sonny Bono.

KLE:seb
rcfc\1453
Roll Call:
Ayes: Buster, Tavaglione, Ceniceros, Wilson and Mullen
Noes: None
Absent: None

FORM APPROVED COUNTY COUNSEL
MAR 07 1995
BY ASSISTANT COUNTY COUNSEL

The foregoing is certified to be a true copy of a resolution duly adopted by said Board of Supervisors on the date therein set forth.
GERALD A. MALONEY Clerk of said Board
By: Deputy

SANTA ANA RIVER - MAINSTEM

The Water Resources Development Act of 1986 (Public Law 99-662) authorized the Santa Ana River - All River project which includes improvements along the river in Orange County, enlargement of Prado Dam and Reservoir near Corona, California, construction of a new dam (Seven Oaks) near the entrance to Santa Ana Canyon, improvement of the Oak Street Drain Channel in Corona, California, improvement of Santiago Creek in Orange County and various mitigation features as set forth in the Chief of Engineers' Report to the Secretary of the Army. The Boards of Supervisors of Orange, Riverside and San Bernardino Counties are in support of this needed project and have so stated in past resolutions to Congress.

The Local Cooperation Agreement (LCA) was signed in December 1989 by the three local sponsors and the Army. Construction started on the Seven Oaks Dam in the Spring of 1990. The embankment construction started in the Summer of 1994. The Seven Oaks Dam will take about seven years to complete. Acquisition has been completed on enhancement lands near the mouth of the river channel and the local sponsors have acquired lands, easements, rights of way and disposal areas for Seven Oaks Dam and commenced acquisition for other elements of the project. Construction has been completed on the Oak Street Drain element. The Mill Creek element has been completed. Construction has been completed on two reaches of the lower Santa Ana River Channel and continues on four other reaches. The President has recommended that 70.24 million dollars be appropriated in FY1996 to continue this important project.

We support the President's request for 70.24 million dollars for the Santa Ana Mainstem construction and urge the Committee to approve the funds in the Fiscal Year 1996 appropriations.

SANTA ANA RIVER AT NORCO BLUFFS

The Santa Ana River passes along the northerly border of the City of Norco. Norco is situated on a bluff that forms the left bank of the river. The bluff varies in height from 46 to 96 feet above the streambed.

The floods of January and February 1969 along the Santa Ana River caused impingement of the river bank, undermining the toe of the slope causing sloughing of the bank. Approximately 50 to 60 feet of the bluff retreated to the south. No improvements were lost at that time but the threat to improvements from future river actions became apparent. The floods of 1978 and 1980 impinged further, causing another 30 to 40 feet of retreat of the bluff. One single family residence was undermined and destroyed because of this damage.

A provision in the Water Resources Development Act of 1990, PL 101-640, directed the Secretary of the Army to conduct a study of the feasibility of improvements along the Santa Ana River at Norco Bluffs to prevent further damage to the bluffs by the river.

The Corps found sufficient justification to proceed with a feasibility study in their reconnaissance study. A cost shared study agreement has been executed by the Corps and the District and the study is well underway. The total feasibility study costs are estimated to be 1.85 million dollars. Congress has appropriated $550,000 to date for this study. We are requesting Congress to appropriate $375,000 in FY1996 to provide sufficient Federal funding along with an equal share of funding from the local sponsor to complete the feasibility study in FY1996. The Riverside County Flood Control and Water Conservation District has funding available for its share of the cost of the feasibility study.

We request the Committee to approve $375,000 in Fiscal Year 1996 appropriations to complete the feasibility study of the Santa Ana River at Norco Bluffs at Norco, California.

WHITEWATER RIVER BASIN

The Whitewater River, as it flows through the Coachella Valley area of Riverside County, California, cannot contain large flood flows within its banks and thus can cause extensive damage in the event of a large flood. This area of Riverside County is experiencing rapid development. The river passes through the Cities of Palm Springs, Cathedral City, Rancho Mirage, Palm Desert and Indio on its way to the Salton Sea.

In 1989, the House Committee on Public Works and Transportation, Subcommittee on Water Resources adopted a resolution authorizing a study of the Whitewater River Basin in the Coachella Valley.

A Reconnaissance Study has established certain feasible flood control projects in the Whitewater River Basin. A cost shared feasibility study commenced during FY1994. The President has requested $370,000 to continue this feasibility study in FY1996.

We support the President's request for $370,000 to continue feasibility studies for projects in the Whitewater River Basin, Riverside County, California and urge the Committee to approve the funds in the Fiscal Year 1996 appropriations.

WEDNESDAY, MARCH 29, 1995.

COLUSA BASIN DRAIN

WITNESS

GAYE LOPEZ, SECRETARY-ADMINISTRATOR, COLUSA BASIN DRAINAGE DISTRICT

HAROLD MYERS, DIRECTOR, COLUSA BASIN DRAINAGE DISTRICT

Ms. TENNIS. Turning now to the Colusa Basin Drainage District, Gaye Lopez, Secretary-Administrator.

Ms. LOPEZ. Good morning. Yes, my name is Gaye Lopez. I am Secretary-Administrator of the 650,000 acre Colusa Basin Drainage District, which is located on the west side of the Sacramento River. It covers three counties, Glenn, Colusa and northern Yolo.

Integrated resource management will meet multiple needs within the watershed. This year, heavy rainfall caused massive flooding twice. Increased flooding control capabilities would not only help mitigate widespread damages, but would allow floodwaters to be converted into a usable water supply. By taking the peak flows off stream tributaries and diverting them to areas with gravel strata, groundwater recharge will occur. By constructing diversions to create small reservoirs and creating wetlands, soil erosion is prevented, wildlife habitat is provided, chemical nutrients are degraded, and the water quality of the Sacramento River and its tributaries is improved. Everyone benefits.

The requested $750,000 will assist the district with development and design of the conjunctive use demonstration projects. We appreciate the congressional add-on of $100,000 which was appropriated in 1994. Thank you very much.

Mr. RIGGS. Thank you.

[The statement of Mr. Lopez follows:]

COLUSA BASIN DRAINAGE DISTRICT

P.O. Box 312, Woodland, California 95776 Phone: (916) 795-3038 Fax: (916) 795-4745

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Testimony of Ms. Gaye Lopez
March 29, 1995

REQUEST FOR FEDERAL US BUREAU OF RECLAMATION APPROPRIATION

COLUSA BASIN DRAIN (CWC NO.621)
FY 1996 Request: $ 750,000

My name is Gaye Lopez. I am Secretary/Administrator of the 650,000 acre Colusa Basin Drainage District, located on the west side of the Sacramento River, which serves a large watershed exceeding one million acres, comprised of 21 smaller watersheds. It covers three counties--Glenn, Colusa and northern Yolo. It not only is a rich agricultural area, but a rich wildlife area as well, including three national wildlife refuges. A cooperative, integrated approach to watershed management will allow water-related projects to meet multiple needs within the watershed.

The District has just completed ranking the 21 watersheds within the Basin, to define areas where it is most feasible to achieve the District's goals to: (1) provide flood and drainage water protection for urban and agricultural interests; (2) capture surface or stormwater for conservation, conjunctive use and increased water supplies; (3) assist in groundwater recharge efforts to alleviate overdraft and land subsidence; and (4) improve and enhance opportunities for wetland and riparian habitats and (5) protect agricultural production.

This year, abnormally heavy rainfall caused massive flooding. Increasing the Flood control capabilities would not only help mitigate widespread damages from such events, but would allow flood waters to be converted into a usable water supply for the District as well as for other areas of the state.

BOARD OF DIRECTORS
Jack Wallace • Anthony Azevedo • Harold Myers • Keith Hansen • Kenneth Rominger • Frank Sieferman • Michael Vereschagin • Ronald Vickers • William Waite

By taking the peak flood flows off streams and small natural tributaries and diverting them to areas with gravel strata, groundwater recharge and enhancement will occur. By constructing small diversions to create small reservoirs and stock ponds, doing streambed restoration work, creating wetlands, putting in streambank plantings, and by initiating voluntary, on-farm management practices, everyone benefits. Cattle ranchers are expected to have more water and grass for a longer season, which means greater profits, Soil erosion is prevented. Wildlife habitat is provided. Chemical nutrients are degraded. And the water quality of the Sacramento River and its tributaries is improved.

The District has initially selected three watersheds where projects will be developed to serve as a demonstration for integrated resources management. The key immediate tasks include feasibility-level analyses of hydrologic, hydrogeologic, geophysical, natural resources and environmental issues; facility options and operations; and economic feasibility.

The requested $750,000 funding will assist the District with costs associated with pre-project development and design for construction of the conjunctive use demonstration projects. The congressional add-on of $100,000 which was appropriated in 1994 was very much appreciated.

Ms. TENNIS. Waiting for Vic to make a comment.

Mr. FAZIO. Gaye is just one of my dearest and oldest friends and I wanted to say good job, Gaye.

Ms. TENNIS. No kissing up, you noticed.

Mr. RIGGS. I think she looked right at Mr. Fazio when she talked about the add-on.

WEDNESDAY, MARCH 29, 1995.

WINTER-RUN CHINOOK SALMON

CAPTIVE BROODSTOCK PROGRAM

WITNESS

NATHANIEL BINGHAM, HABITAT DIRECTOR, PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS, INC.

Ms. TENNIS. I didn't know if I should defer to you to introduce Nate. I know you are a good friend of his, too.

Mr. RIGGS. Yes, we are. I will let you introduce Nate. But I will point out that I promised him an extra minute last night.

Ms. TENNIS. We have Nat Bingham, Habitat Director of the Pacific Coast Fishermen's—Federation of Fishermen's Association, Inc.

Mr. BINGHAM. Thank you very much, Mr. Chairman. In view of the fact that we are running behind schedule, in fact I will defer your generous offer of one minute and pass that time to my colleagues.

Mr. FAZIO. You will turn it in for money, is what you will do, Nate.

Mr. BINGHAM. I want to begin by expressing the appreciation and gratitude of the fishing industry that the water community would choose to allow a representative of the fisheries to appear before you today. And it is with our heartfelt appreciation that we could come on a partnership basis today.

I would also like to express thanks to you, Mr. Riggs, for your support of the Captive Blood Stock program. You dedicated it three years ago, and express the thanks of all of us that are involved in that important program which is protecting and preserving the winter run Chinook, to Mr. Fazio for his support, and also to Mr. Herger for the support he expressed this morning, and also to Ms. Pelosi for having carried the authorization legislation last year. And we just like to say that we appreciate all of what you have all done to make that program a reality.

We are here asking for funding to continue the program and we regret that it is not in the President's budget. That reflects some philosophical bias in the Department of Interior against captive rearings, not the merits of the program. The amounts of funding that we are requesting are detailed in my written testimony that has just been handed out.

I would also like to just quickly mention three other programs that the salmon industry supports. The spring run Chinook salmon program, which is a consensus program working to keep spring run Chinook being listed—a successful program to date in that we have held off listing for two years, the Coho salmon program which is attempting to come to grips with the potential listing of Coho salmon, in partnership with the timber industry; and finally, the fishermen's own salmon stamp program, which is in great need of assistance because of reduced income to the fishery.

And with that, I will refer you all to my written testimony and thank you very much for the opportunity to be here.

Mr. RIGGS. Thank you. We look forward to working with you on those continuing fisheries restoration efforts. Thank you for your personal leadership in that area.

[The statement of Mr. Bingham follows:]

TESTIMONY OF NAT BINGHAM, HABITAT DIRECTOR
PACIFIC COAST FEDERATION OF FISHERMEN'S ASSOCIATIONS
before
THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON WATER AND POWER

Introduction

In order for California's magnificent salmon resource to continue to be restored there are several programs which are in need of Federal funding assistance. These programs unlike the large projects funded by the Central Valley Improvement act , have been developed by citizens groups resident and knowledgeable in the areas where the critical habitats nessacery to the recovery of salmon are located. Salmon , unlike many other species , contribute jobs directly to California's economy. The commercial salmon fishery has declined in recent years, not because of over fishing, but because of habitat degradation. The programs detailed below are designed to restore and improve salmon habitat or to directly benefit threatened and endangered stocks of salmon

Winter Run Chinook Salmon Captive Broodstock Program

This project is rearing a selected group of winter run Chinook salmon in captivity under controlled conditions untill they become reproductivly mature adults. Those adults would then be used as hatchery broodstock for continued propagation of the race. Winter run Chinook salmon which is a unique stock existing nowhere else in the world, have been listed under the Federal Endangered Species Act (ESA) as endangered.

Authorization legislation for this program was enacted by Congress in 1994 for a million dollars annually. $400,000 was provided by the committee in F.Y. 1995 which was reduced to $100,000 by the Bureau of Reclamation. We are requesting $100,000 in the U.S. Fish and Wildlife Service appropriation and $300,000 in the Bureau of Reclamation appropriation for this important program. (Detailed project description attached)

Spring Run Chinook Salmon Program

A proactive program to improve spring run Chinook salmon habitat has been undertaken by a collaborative consensus based group known as the Spring Run Chinook Salmon Work group. This group, which includes relevant government agencies (U.S. Fish and Wildlife Service Bureau of Reclamation , National Marine Fisheries Service, California Department of Fish and game, the California Department of Water Resources), farmers, ranchers, educators, environmentalists, sport and commercial fishermen, is strongly dedicated to the recovery of spring run Chinook. They have developed a recovery plan and already implemented many significant elements of it. Were it not for the work of this group, by now, spring run Chinook would certainly have been listed under the Federal ESA.

In FY. 1995 we requested funding from the committee for $500,000 for our program to be provided to the National Fish and Wildlife Foundation to fund projects recommended by the work group. $300.000 was provided. The work group has successfully recommended a ranked list of projects beneficial to spring run Chinook salmon to the National Fish and Wildlife Foundation.

We are requesting that the committee provide $500,000, to be deposited with the National Fish and Wildlife Foundation to continue the spring run program.

Coho Salmon Program

Coho Salmon are presently under consideration for listing under the Federal Endangered Species Act by the National Marine Fisheries Service. A coalition of stakeholders has formed the Farm, Fisheries, and Forestry Communities Forum to collaboratively address the recovery of coho salmon . A comprehensive assessment of coho population status and habitat inventory on the privately owned forest lands is already underway. This effort will lead to habitat restoration projects which will largely be funded by the stakeholders.

$250,000 was requested for this project in FY1995, $150,000 was provided.

We are requesting $250.000 to continue the program

Salmon Stamp Program

The Salmon Stamp Program is a self taxation program overseen by representatives of the commercial salmon fishermen, charter boat operators and California Department of Fish and Game for programs that will increase the fresh water production of young salmon in Central Valley Project impacted streams or fishery habitat. (Booklet describing program attached).

$350,000 was provided for the program by the mandated sales of salmon stamps to fishermen in FY 1995. This compares to an average of over $600,000 in sales due to fishermen leaving the fishery and a reduction in the sale price of the stamp which is set by the amount of the previous season landings. $150,000 was provided to the stamp program by a grant from the economic Development Administration in FY 1995 and $100,000 was provided by the committee for Bureau of Reclamation funding to the State of California commercial salmon stamp account pursuant to section 3407 (e) of Public Law 102-575.

We are requesting that the fishermen's expected contribution to salmon restoration of $350,000 be matched by the committee with a $350,000 contribution to continue this valuable cost effective program.

Summary of Fiscal Request to the Appropriations Committee

Winter Run Chinook Broodstock Program		
U. S. Bureau of Reclamation	$300,000	
US. Fish and Wild Life Service	$100,000	
Dept. of Commerce, NMFS	$100,000	
Total Broodstock program request		$500,000
Spring Run Chinook Salmon Work group		
U. S. Bureau of Reclamation	$500,000	
Total Spring run Request		$500,000
Coho Salmon Program		
US. Bureau of Reclamation	$250,000	
Total Coho salmon request		$250,000
Salmon Stamp Program		
U.S. Bureau of Reclamation	$350,000	
Total Salmon Stamp request		$350,000
Total Requested Salmon Restoration funding		**$1,600,000**

SUMMARY OF SACRAMENTO RIVER WINTER-RUN CHINOOK SALMON CAPTIVE BROODSTOCK PROGRAM

NEED FOR PROGRAM

The Sacramento River winter-run Chinook salmon have been listed as threatened under the Federal Endangered Species Act by the National Marine Fisheries Service. This listing has already impacted several important sectors of California's economy. Actions already taken to protect winter-run salmon and their habitat include curtailment of salmon fishing in coastal California waters, restrictions on diversions from the Sacramento-San Joaquin Delta for the State Water Project and the Federal Central Valley Project, reduction of water diversion at the Glenn-Colusa Irrigation District, halting the release of striped bass into the Sacramento Delta, bypassing the powerhouse at Shasta Dam to provide cool water in the upper Sacramento River and holding up the permit process for the dredging of the ports of San Francisco and Oakland.

PROGRAM GOALS

The goal of the captive broodstock program is to rear winter-run Chinook salmon under controlled conditions until they become reproductively mature adults. Mature adults would then be used as hatchery broodstock for continued propagation on the race. The captive breeding program would provide:

1. an "insurance policy" to preserve genetic material
2. a source of fertile eggs for the Coleman National Fish Hatchery (NFH) winter-run propagation program.
3. a source to supplement naturally spawning fish
4. to "buy time" until conditions in the Sacramento River improve
5. an egg and fry source for experimental water quality studies, and
6. maximum future options for the eventual recovery of the species.

PROGRAM PLAN

The captive broodstock program would recover winter-run salmon by:

1. holding 1,000 juvenile salmon at Coleman NFH instead of releasing them into the wild
2. transferring the juvenile fish to fresh and salt water holding facilities at University of California at Davis, Bodega Marine Laboratory and Steinhart Aquarium at San Francisco
3. holding the fish at these facilities for 2 or 3 years until maturity
4. returning the fish to Coleman NFH to be spawned, which would greatly increase the winter-run egg supply

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GENETIC MANAGEMENT

A genetic management element is included in the project. This is necessary to prevent inbreeding of the fish. A blue-ribbon subcommittee of recognized scientists has been appointed by the captive broodstock committee to oversee the genetic program.

COSTS

The budgeted costs for the proposed ten-year program, as developed from detailed budgets of the respective participating agencies, are shown on the accompanying table.

For FY 1996, these are:

Expenses:	
Steinhart Aquarium	$ 75,654
Bodega Marine Laboratory	513,401
Genetic Management/Molecular Genetic Analysis	244,925
Genetic Management Subcommittee	24,000
Coleman NFH O&M and Support Activities	250,000
Total budgeted expenses	**$1,107,980**
Funds to be Acquired:	
Funds Assured to Date:	
USFWS, In Kind	$ 250,000
USBR	100,000
Salmon Stamp	10,000
California Department of Water Resources	200,000
Sub-total	**$ 560,000**
Additional Funds Needed	$ 547,980
Recommended Sources for Additional Funds Needed	
USFWS	$ 100,000[1]
USBR	200,000[1]
U.S. Department of Commerce, NOAA	100,000[1]
Category III, 12/15/94 Program	$ 200,000[1]
TOTAL	$ 600,000[1]

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[1] Amounts recommended but not yet approved by the indicated agencies.

Prepared by: Nat Bingham and Stan Barnes with help from others, March 27, 1995.

WINTER-RUN CHINOOK SALMON CAPTIVE BROODSTOCK PROGRAM
Summary of Proposed Ten-Year Budget

State Fiscal Year (7/1 - 6/30) Federal Fiscal Year (10/1 - 9/30)	1992-1993 1993	1993-1994 1994	1994-1995 1995	1995-1996 1996	1996-1997 1997	1997-1998 1998	1998-1999 1999	1999-2000 2000	2000-2001 2001	2001-2002 2002	TOTAL
Steinhart Aquarium	222,592	89,448	173,004	75,654	88,437	107,648	85,427	88,648	93,031	96,583	1,120,472
Bodega Bay Marine Lab	489,702	607,213	565,059	513,401	547,589	646,727	655,367	700,616	712,010	749,968	6,187,652
Genetic Management/ Molecular Genetic Analysis	225,000	219,597	230,503	244,925	235,131	236,331	247,953	260,372	273,740	287,581	2,461,133
Genetic Management Subcommittee	41,000	42,000	43,000	24,000	25,000	26,000	26,000	27,000	28,000	29,000	311,000
Coleman National Fish Hatchery O&M and Support Activities	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	2,500,000
Coleman NFH Isolation Facilities and Quality Control	0	250,000	250,000	0	0	0	0	0	0	0	500,000
TOTAL BUDGET	1,228,294	1,458,258	1,511,566	1,107,980	1,146,157	1,266,706	1,264,747	1,326,636	1,356,781	1,413,132	13,080,257
Funds Acquired				Proposed							
U.S. Department of Interior Fish and Wildlife Service In Kind	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	2,500,000
Additional funds	0	250,000		100,000							250,000
Bureau of Reclamation	100,000 200,000	300,000	100,000	300,000							1,100,000
U.S. Department of Commerce NOAA	500,000	250,000	250,000	100,000							1,000,000
State of California Department of Fish and Game	241,291	200,000	0	0							441,291
Salmon Stamp	25,000	10,000	10,000	10,000							55,000
Department of Water Resources	100,000	200,000	200,000	200,000							700,000
Category III				200,000							300,000
Subtotal - Funds Acquired	1,416,291[1]	1,460,000[1]	810,000	1,160,000	250,000	250,000	250,000	250,000	250,000	250,000	6,346,291
ADDITIONAL FUNDS NEEDED	+187,997[1]	+1,742[1]	701,566	52,020+	896,157	1,016,706	1,014,747	1,076,636	1,106,781	1,163,132	6,733,966

[1] Funds acquired are allocated to multi-year contracts and are not spent in single fiscal year

Revised 3/21/95 (916) 653-5958

Ms. TENNIS. Mr. Chairman, in reference to item number 27, I direct your attention to a statement that has been submitted by the Environmental Defense Fund on behalf of the CVPI Restoration Roundtable, a consensus of urban, agricultural, and environmental interests, to see that the CVPI restoration money gets well spent.

[The statement of the Central Valley Project Restoration Fund Roundtable follows:]

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Meyers, Chairman

CENTRAL VALLEY PROJECT RESTORATION FUND ROUNDTABLE

Statement on Appropriations for the 1996 Fiscal Year

March 29, 1995

Mr. Chairman and Members of the Subcommittee:

In August of 1994, a diverse stakeholder group interested in the future health of California's Central Valley watershed and the San Francisco Bay/Sacramento-San Joaquin Delta convened a Roundtable with the goal of reaching consensus on management of and priorities for the user-financed Restoration Fund created by the Central Valley Project Improvement Act (CVPIA) of 1992.

Having reached a consensus, the Restoration Fund Roundtable--composed of farm, urban, hydropower, business, environmental, and conservation interests--offers this statement in support of funding for our jointly-developed priorities for the CVP Restoration Fund and associated Energy and Water Development appropriations for the 1996 fiscal year. Based on the President's FY96 budget request, these include a total of $31.83 million for the Shasta Temperature Control Device (TCD), $6.00 million for the screening of unscreened diversions, and $25.00 million for water and land acquisitions and water conveyance for the Central Valley's fish and wildlife resources.

We would also like to use this statement to explain further the basis for our support of these requests, and to highlight our concerns and ongoing efforts regarding the assumed provision of non-federal funds, including, in particular, $20.00 million from California as a cost-share contribution for the Shasta TCD.

Shasta Temperature Control Device The President's budget includes a total of $31.83 million under the authority of section 3406(b)(6) of the CVPIA for ongoing construction work on the Shasta TCD. Of this amount, $11.28 million would be derived from the CVP Restoration Fund, while $20.55 million would be derived from other sources, including some $20.00 million in cost-share contributions from the State of California. The President's budget notes that, absent receipt of a commitment from the State by March

31, 1995 to provide such funds during FY96, a list of offsets will be identified for reduction in order to ensure the payment of contract costs incurred for the Shasta TCD.

While the overall request for the Shasta TCD approaches the Roundtable's October 7, 1994 recommendation to Secretary Babbitt for $37 million in FY96, we are extremely concerned that it will not be possible for the State to make the necessary funding commitments within the time period allowed. This could jeopardize both existing contractual commitments as well as construction work now underway on the Shasta TCD, and/or the implementation of other priority measures which are now included as part of the budget request. As the Roundtable works to secure State cost-share funding for the CVPIA as a whole (see, e.g., our comments on *State Cost Sharing* below), we urge the Congress to ensure that any portion of the $20.00 million in TCD cost-share funding that cannot be provided by the State in FY96 be provided instead through the aforementioned budgetary offsets.

Screening of Unscreened Diversions The budget request includes a total of $6.00 million to be derived from regular Agency appropriations under the authority of section 3406(b)(21) of the CVPIA for constructing screens on unscreened diversions, rehabilitating existing screens, replacing existing non-functioning screens, and relocating diversions to less fishery-sensitive areas. The Roundtable supports this request, although it is significantly less than the $10 million we originally requested in our October 7, 1994 letter to Secretary Babbitt. Our current recommendation is based on the considerable pressures now facing the Bureau of Reclamation budget, as well as provisions of the December, 1994 *Principles for Agreement on Bay-Delta Standards* (hereinafter "the Bay-Delta Accord") which establish a very high priority for the screening of unscreened diversions through "Category III" funding.[1]

Consistent with our earlier request, we would like to make the following additional points, emphasizing that many diverters (and, indeed, many in our Roundtable) are already working with state and federal agencies to develop programs which resolve the following concerns:

> First, to more effectively utilize scarce economic resources and to best protect both fishery resources and water supplies, biological priorities should be established for the hundreds of unscreened diversions in the Sacramento and San Joaquin Valleys and for the more than 1,300 unscreened diversions in the Delta;
>
> Second, to accomplish this objective, a well-coordinated, multi-agency program is needed. This program should work closely with affected stakeholders and interests, and should offer technical advice as well as research-, funding-, and streamlined permitting assistance;

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[1] As part of the Bay/Delta Accord, the parties agreed that water-quality standards would have to be supplemented by non-flow measures (e.g., fish screens) in order to achieve comprehensive protections. The parties committed to fund and implement these so-called "Category III" measures with an estimated $60 million/year in new and re-prioritized funds for each of the next three years.

> Finally, a companion "assurances" program, appropriately structured, would help to secure cooperation and partnership funding from those directly affected. Under such a program, in exchange for private-sector funding, diverters would be protected from having to pay for significant modifications to approved projects over a set period of time should problems arise due to new species listings or other previously unforseen circumstances. (Such assurances would be analogous to the "shelf life" provisions of the Bay/Delta Accord.)

Water and Land Acquisitions and Water Conveyance The President's budget includes a total of $17.12 million to acquire water and land under the authority of sections 3406(b)(3) and 3408(h) of the CVPIA, to be derived solely from the Restoration Fund. In addition, approximately $7.93 million is proposed under the authority of section 3406(d) of the CVPIA for planning, construction, and conveyance of refuge water supplies. Of this amount, $5.68 million will be derived from the Restoration Fund, and the remaining $2.25 million from regular Agency appropriations. These amounts are substantially in accordance with our October 7, 1994 request to Secretary Babbitt, including approximately $16 million "for willing-seller based land, water, and habitat acquisitions" and $8 million "for the conveyance and wheeling of ... water supplies to Central Valley refuges and wildlife habitat areas."

The Roundtable supports the President's FY96 request based on our belief that the CVPIA's water and land acquisition provisions, when properly implemented, will provide significant ecological benefits (including drainage and flood control) throughout the Central Valley while minimizing economic and social impacts to water users and landowners alike. Consistent with our request to Secretary Babbitt, the Roundtable believes that acquisitions should be undertaken in accordance with the restoration priorities identified as part of the supplemental CVPIA water acquisition program now being developed, with the goal of securing the greatest ecological benefit(s) consistent with the purposes of that Act.

To this end, funds provided under the above authorities in FY96 should be fully coordinated with other CVPIA programs and authorities (including the Act's water transfer provisions) in the Sacramento, San Joaquin, and Delta-estuary regions to ensure that the broadest possible array of alternatives (e.g., purchases, leases, options, and easements) is used. The Roundtable is committed to working with the Service, Reclamation, and others to develop appropriate criteria to guide the overall acquisition program, including the systematic evaluation of restoration priorities as discussed further below.

With respect to the planning, construction, and conveyance of refuge water supplies, we urge that full consideration be given to the use of long-term compensated wheeling agreements where substantially equivalent environmental benefits can be assured for lesser overall cost. (Where appropriate and feasible, the acquisition of available capacity may be significantly cheaper than the construction of new canals or pipelines.) As explained further below, we also hope that the State of California will be able to meet a portion of its cost-share commitments by financing, crediting, or otherwise providing available capacity through State Water Project facilities in lieu of federal reimbursements for the use of such capacity. The savings associated with these and other measures could then be used as needed to supplement Shasta TCD funding, or to implement other high-priority restoration measures not specifically addressed herein.

State Cost Sharing In January of this year, the Roundtable wrote to Governor Pete Wilson of California urging the inclusion of CVPIA cost-share funding as part of the Administration's efforts to implement the Bay-Delta Accord, including the State's share of funds associated with that Agreement's Category III commitments. Currently, we are trying to arrange a Roundtable briefing for key state legislators in May in an effort to gain support for a variety of alternative cost-share possibilities, including, at least potentially, a recently-introduced package of Bay-Delta restoration bond funding measures. In addition, we are working on a number of ideas that could generate significant savings in anticipated federal outlays through (e.g.) provision of conveyance capacity and other contributions in kind.

Nevertheless, as noted above, the Roundtable remains greatly concerned that the $20.00 million in state cost-share funding assumed as part of the President's budget request for the Shasta TCD is unlikely to materialize within the time frame allowed. Consistent with the directive contained in the 1995 Energy and Water Appropriations Act report, we respectfully request that sufficient federal funds be provided in FY96 to supplement those provided through the Restoration Fund to keep the Shasta TCD "on track" irrespective of the level of state cost-share contributions actually realized in FY96. We, in turn, will continue our efforts to secure the state funds needed to meet the objectives of the June 27, 1994 *Sharing of Costs Agreement for Mitigation Projects and Improvements* between the State of California and the United States, as well as the financial commitments made as part of the Bay/Delta Accord.

Future Roundtable Efforts and Funding Priorities The 1995 Energy and Water Appropriations Act report directed the U.S. Fish and Wildlife Service to develop, by March of 1995, a report which details current priorities for funding under the CVPIA, including, as best as can presently be determined, "the anticipated biological benefit of each recommended action." After reviewing an early draft of the subject report, the Roundtable asked the Service to take additional time to provide a number of important details, and to undertake additional consultations with affected stakeholders and interests. Our hope is to ensure that expenditure priorities under the CVPIA (and especially those involving the Restoration Fund) are focused on activities that provide direct restoration benefits, and that such priorities and programs are coordinated with those of others (including Reclamation and Category III interests). The Service agreed to our request, and a detailed Restoration Fund Priorities Briefing has now been scheduled for Wednesday, March 29, 1995, in Sacramento.

In the months and years ahead, the Restoration Fund Roundtable will work with the Service, Reclamation, and other agencies and interests to ensure that the completed priorities report is useful, accurate, and widely embraced. We look forward to working with you, and with other members and committees of the Congress, in continued efforts to reach our stated goals and objectives.

This concludes our written statement. If you would like to know more about the CVP Restoration Fund Roundtable, receive copies of our letters, or have questions specific to this statement, please contact David Yardas of the Environmental Defense Fund (510-658-8008) or Jason Peltier of the Central Valley Project Water Association (916-448-1638), who will gladly direct your inquiries to the appropriate Roundtable member(s). Thank you very much.

Respectfully submitted,

Member Organizations,
Central Valley Project Restoration Fund Roundtable

BANK OF AMERICA
CALIFORNIA FARM BUREAU FEDERATION
CALIFORNIA RICE INDUSTRY ASSOCIATION
CALIFORNIA WATERFOWL ASSOCIATION
CENTRAL VALLEY PROJECT WATER ASSOCIATION
DUCKS UNLIMITED
EAST BAY MUNICIPAL UTILITY DISTRICT
ENVIRONMENTAL DEFENSE FUND
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
NATURAL HERITAGE INSTITUTE
NORTHERN CALIFORNIA POWER AGENCY
NORTHERN CALIFORNIA WATER ASSOCIATION
PALO ALTO UTILITIES DEPARTMENT
SACRAMENTO MUNICIPAL UTILITY DISTRICT
SHARE THE WATER COALITION
STATE WATER CONTRACTORS
THE NATURE CONSERVANCY

WEDNESDAY, MARCH 29, 1995.

RECLAMATION DISTRICT NO. 108 (UNSCREENED DIVERSIONS)

WITNESSES

EMERY POUNDSTONE, PRESIDENT
LUTHER HINTZ, MANAGER
GAYE LOPEZ, CONSULTANT

Ms. TENNIS. Item number 28 is Reclamation District 108. We have Emery Poundstone, President.

Mr. POUNDSTONE. Mr. Chairman, members of the subcommittee, my name is Emery Poundstone. I am a fourth-generation farmer from northern California, and I am President of the Board of Trustees for Reclamation District 108.

In 1992, the district first stepped forward to initiate testing of its diversion facilities to determine the levels of fish entrainment. Since that time, the district has spent in excess of $1 million of its own funds in an effort to address the problem of fish loss at agriculture diversions.

With the assistance of the Bureau of Reclamation, the National Marine Fishery Service, and other Federal and State resource agencies, the district is proceeding with plans for testing an electrical fish guidance and flow distribution facility in 1995.

It is estimated that a traditional fixed barrier screen at the Wilkins Slough Diversion Pumping Plant could cost as much as $7 million to construct. Successful protection through alternative technologies could save the district and the government millions of dollars. Similar savings could be realized at hundreds of other diversions along the Sacramento and San Juaquin Rivers as well as the Delta.

In order to continue to make progress on this cost-effective technology, Reclamation District 108 respectfully requests a $600,000 appropriation in fiscal year 1996 from the Bureau of Reclamation's instruction program, Sacramento division, toward the program costs for 1996 at $1.2 million.

Thank you for your consideration.

[The statement of Mr. Poundstone follows:]

RECLAMATION
DISTRICT
108

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United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Statement of Mr. Emery Poundstone
Reclamation District No. 108
March 29, 1995

Mr. Chairman, Members of the Subcommittee, my name is Emery Poundstone. I am a fourth generation farmer from Northern California and President of the Board of Trustees of Reclamation District No. 108.

The District was founded in 1870, and, in 1918, the District became the first reclamation district in the State of California to deliver irrigation water to farmers.

Today, the District owns and operates 10 pumping plants and approximately 200 miles of canals, including 40 miles of concrete lined canals, that deliver water to 48,000 acres of irrigated agricultural land.

The District has been a pioneer in flood control, drainage and irrigation activities within the Sacramento Valley since its founding, 125 years ago.

And, today, the District continues that trend as a pacesetter by working with the Bureau of Reclamation, and State and federal resource agencies, to develop cost-effective alternatives to traditional positive fish barrier screens in order to reduce the entrainment of the endangered winter- run chinook salmon in agricultural water diversions on the Sacramento River.

In 1992, the District voluntarily stepped forward to initiate testing of its diversion facilities to determine the levels of entrainment. In 1993 and 1994, the District stepped forward, again voluntarily, to test the effectiveness of acoustic (underwater sound) and electrical fish guidance technologies at the District's Wilkins Slough Pumping Plant.

To date, the District has spent in excess of $1,200,000 of its own funds in an effort to address the problem. With the assistance and support of the Bureau of Reclamation, the National Marine Fisheries Service, and other federal and State resource agencies, the District is proceeding with plans for testing an electrical fish guidance and flow distribution facility during 1995.

The District is optimistic this new system will prove sufficiently effective that the National Marine Fisheries Service will find it to be a suitable alternative to a traditional positive fish barrier screen. In addition, it is our expectation that the system will be significantly less costly to install and operate when compared to traditional screens.

It is estimated that a positive fish barrier screen at the Wilkins Slough diversion could cost as much as $7 million to construct. Successful protection through alternative technologies would save the District and the government millions of dollars. Similar savings could be realized at hundreds of other diversions along the Sacramento and San Joaquin Rivers and in the San Francisco Bay-Delta.

In order to continue to make progress on this innovative, cost-effective fish protection technology, Reclamation District No. 108 respectfully requests a $600,000 appropriation in fiscal year 1996 from the Bureau of Reclamation toward the program cost for 1996 of $1,200,000. This is the minimum level of funding that will be necessary to keep this project on a schedule that is satisfactory to the resource agencies.

Thank you for your consideration and continuing support.

Mr. FAZIO. Mr. Chairman, I just wanted to briefly comment, to laud RD 108 for their leadership in trying to deal with a problem that everyone on the river has got to face at some point. And you have been out front. Hopefully, we will make some breakthrough, Emery, and be able to help a lot of other people. And I want to thank you and your members for your leadership.

Mr. POUNDSTONE. Thank you, Congressman Fazio.

Mr. RIGGS. Mr. Poundstone, where is Reclamation District 108? Obviously I think it must be near or in Congressman Fazio's congressional district.

Mr. POUNDSTONE. It is in his district. It is bordered on the east side by the Sacramento River. It runs from the small town of Grimes to the small town of Knights Landing, distance of about 25 miles on the river. But there is 57,800 gross acres within the district, and about 48,000 irrigable acres.

Mr. RIGGS. And where would this fish guidance facility be located?

Mr. POUNDSTONE. On the Sacramento River at our most upstream bumpy plant, which is also our largest plant.

Mr. FAZIO. This is very important for constituents, too.

Mr. RIGGS. I am beginning to realize that. Thank you.

Mr. POUNDSTONE. Thank you.

WEDNESDAY, MARCH 29, 1995.

MONTEREY COUNTY WATER RECLAMATION FACILITY FOR CROP IRRIGATION

WITNESS

KEITH ISRAEL, GENERAL MANAGER, MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY

Ms. TENNIS. Mr. Chairman, we turn now to some items that are specifically regarding water recycling, and I have asked Stan Barnes, our appropriations committee chairman, to chair this section.

Mr. RIGGS. Very good, Mr. Barnes.

Mr. BARNES. I just say quickly, Mr. Barsch had to leave to get things ready to catch an airplane. And I would ask the next witnesses to please be ready to fill in behind. So with that, we will move right in. Keith Israel, General Manager, Monterey Regional Water Pollution Control Agency.

Mr. ISRAEL. Mr. Chairman, members of the committee, despite the recent floods, in most years California receives insufficient water for its needs. And there are few new sources available. To assist in this area, the Water Reuse Association of California was formed. As an officer of this association, I am pleased to note that you will be hearing about many of California's finest recycling projects today. Water recycling enjoys broad support as evidenced last year by a joint proclamation signed by the EPA, Bureau of Reclamation, Seawater Resource Control Board, and others.

In our particular situation in the Salinas Valley, the water shortage has caused seawater intrusion and contamination of agricultural and urban wells. Our solution includes using 20,000 acre feet of recycled wastewater on food crops so as to reduce groundwater pumping. This is an innovative use that may someday pave the way for even larger projects using effluents from urban areas, such as San Francisco, San Jose, Los Angeles, and San Diego.

Our recycling project will start construction this summer and be completed in 1997. However, because of funding constraints, the Bureau of Reclamation must disburse loan funds over eight years, not three years. As our project must go forward now, the only viable solution is to obtain and pay for bridge financing. Your support for funding in the President's 1996 and future budgets is critical if we are to proceed with this creative and significant project. Our water supply depends upon your support.

Thank you.

Mr. RIGGS. Thank you.

[The statement of Mr. Israel follows:]

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John T. Myers, Chairman

Testimony of Keith Israel
General Manager
Monterey Regional Water Pollution Control Agency

March 29, 1995

Mr. Chairman, thank you for the opportunity today to appear before this subcommittee. The people of the Salinas Valley in California's 17th District appreciate your willingness to accept our statements in support of the **Salinas Valley Reclamation Project**. The Bureau of Reclamation (USBR) has requested $1,100,000 as part of the President's FY 96 Budget for the P.L. 84-984 Small Reclamation Loan Program for continuation of loan obligations made to the Monterey Regional Water Pollution Control Agency (MRWPCA). This appropriation amount, when combined with other federal funding which is available from the U.S. Treasury pursuant to the Federal Credit Reform Act of 1990 will yield a total loan amount of $1,980,000 for FY 96. The amount requested, when combined with the additional Treasury portion, is intended to fulfill the Bureau's second year loan commitment for assistance to construct the project. The funding request is the result of a lengthy and complex financial agreement worked out with the other Loan program participants and the Bureau. The agreement recognizes the tight federal budgetary constraints and represents that absolute minimal annual amount necessary to proceed with the project. The MRWPCA has been extremely accommodating of the Bureau's budgetary constraints and has agreed to expend considerable local funds to bridge the federal government's budgetary shortfall. Any additional cuts in federal funding will jeopardize the complex financing plan for the project. At the time this appropriation is approved, the Salinas Valley Reclamation Project (SVRP) will be in construction. Therefore, it is imperative that at least $1,980,000 be designated for the Salinas Valley Reclamation Project in the President's FY 96 Budget.

Monterey Regional Water Pollution Control Agency, a joint-powers entity formed under the laws of the State of California, was created in the early 1970's to implement a plan that called for consolidation of the Monterey Peninsula and northern Salinas Valley wastewater flows through a regional treatment plant and an outfall to central Monterey Bay. The plan also required studies to determine the technical feasibility of using reclaimed water for irrigation of food crops (artichokes, celery, broccoli, lettuce, and cauliflower) in the Castroville area. These studies were initiated in 1976 and included a five year full scale demonstration of using reclaimed wastewater for food crop irrigation. California and Monterey County health departments concluded in 1988 that the water was safe for food crops that would be consumed without cooking. Subsequently, the Salinas Valley Seawater Intrusion Committee voted to include reclaimed water in their plan to slow seawater intrusion in the Castroville area.

The reclamation project will provide 19,500 acre feet of reclaimed water to lands south and west of Castroville where abandonment of wells threatens agricultural production and the loss of a portion of rural America. It will also reduce discharge of secondary treated wastewater to the recently created Monterey Bay National Marine Sanctuary.

The State Water Resources Control Board specifically indicated its strong support for the Salinas Valley Reclamation Project in a 1994 letter to the USBR. The Salinas Valley Reclamation Project is an essential component in the plan to deal with basin-wide groundwater overdraft and seawater intrusion. The urgency of the State Board's letter makes it all the more important that the MRWPCA proceed expeditiously with the Salinas Valley Reclamation Project.

In August 1992, the original loan request was submitted to the Bureau. Subsequent approval was received from the Secretary of Interior in May 1994. Prior to loan approval, in March 1993, the EIR/EIS for the project was certified by the Bureau. Design for the project is complete, and construction is set to begin. Through extensive discussion and negotiations between MRWPCA and the USBR, a project financing plan was created. The loan repayment contract negotiations between the USBR and MRWPCA were held on February 13 and 14 and March 10 of this year. The USBR made it quite clear that the original provisions in the loan application of full disbursement during the three years of construction could not be met due to federal budget shortfalls. As defined in the new repayment contract, the USBR will disburse funds to the MRWPCA over an eight year period. This means that the MRWPCA will receive these funds for five years after the project is operational. This also means that the MRWPCA will have to acquire additional "bridge financing" to meet the needs of the Salinas Valley Reclamation Project construction costs.

Even though the additional private debt service will increase the project costs, the critical problem of seawater intrusion demands that the project proceed. The USBR loan is a crucial link in project funding and it is imperative that annual appropriations, even at the planned reduced rate over eight years, continue. The federal funds requested under the P.L. 84-984 program will be repaid by landowners in the Salinas Valley with assessments that are currently in place. Local funds totaling $8,900,000 have already been spent getting to this point.

Mr. Chairman, we urge you and the members of the subcommittee to give your continued support to the Bureau's request of $1,100,000 for the Salinas Valley Reclamation Project in the President's FY 96 Budget. This appropriation when combined with the Treasury portion pursuant to Federal Credit Reform Act of $880,000 will product a total loan amount of $1,980,000 for FY 96. Without your continued support, we will not be able to realize the benefit of the work completed over the past several years; and, the groundwater basin will continue to deteriorate creating a significant threat to the economy and to the health, welfare of our citizens.

Your support and continued assistance will be much appreciated.

WEDNESDAY, MARCH 29, 1995.

CASTROVILLE IRRIGATION WATER SUPPLY PROJECT

WITNESSES

MICHAEL D. ARMSTRONG, GENERAL MANAGER, MONTEREY COUNTY WATER
RESOURCES AGENCY
ARVID MYHRE, CHAIRMAN, MONTEREY COUNTY WATER RESOURCES AGENCY
GRANVILLE PERKINS, DIRECTOR, MONTEREY COUNTY WATER RESOURCES
AGENCY

Mr. BARNES. Next we have Michael Armstrong, who is the new General Manager of the Monterey County Water Resources Agency.

Mr. ARMSTRONG. Mr. Chairman, members of the committee, I am joined today by Arvid Myhre, our board chair, and Granville Perkins, another director sitting in the front row there.

We are here today not to speak to the hundreds of millions in dollars in damage caused by the recent flood in Monterey County, but to speak to you about an item that is in the President's budget. It is the accompanying project, the one that Keith Israel spoke to.

The Castroville Seawater Intrusion Project is an irrigation project that will take the tertiary treatment from the reclamation project and distribute it in the Castroville area. It is a second year in the budget. It represents considerable negotiations with the Bureau of Reclamation. It is the minimal amount that will allow us to go forward. It is a second year of funding and we do request that you support this.

And again thank you very much for accepting our remarks and your continued support.

Mr. RIGGS. Thank you, Mr. Armstrong.

Mr. BARNES. Thank you very much for a good and brief statement.

[The statement of Mr. Armstrong follows:]

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John T. Myers, Chairman

Testimony of Michael D. Armstrong
General Manager
Monterey County Water Resources Agency

March 29, 1995

Mr. Chairman, thank you for the opportunity today to appear before this subcommittee. The people of the Salinas Valley in California's 17th District appreciate your willingness to accept our statements in support of the Castroville Seawater Intrusion Project. The Bureau of Reclamation (USBR) has requested $1,500,000 as part of the President's FY 96 Budget for the P.L. 84-984 Small Reclamation Loan Program for continuation of loan obligations made to the Monterey County Water Resources Agency (MCWRA). This appropriation amount, when combined with other federal funding which is available from the U.S. Treasury pursuant to the Federal Credit Reform Act of 1990 will yield a total loan amount of $2,710,000 for FY 96. The amount requested, when combined with the additional Treasury portion, is intended to fulfill the Bureau's second year loan commitment for assistance to construct the project. The funding request is the result of a lengthy and complex financial agreement worked out with the other Loan program participants and the Bureau. The agreement recognizes the tight federal budgetary constraints and represents that absolute minimal annual amount necessary to proceed with the project. The MCWRA has been extremely accommodating of the Bureau's budgetary constraints and has agreed to expend considerable local funds to bridge the federal government's budgetary shortfall. Any additional cuts in federal funding will jeopardize the complex financing plan for the project. At the time this appropriation is approved the Castroville Seawater Intrusion Project (CSIP) will be in construction. Therefore, it is imperative that at least $2,710,000 be designated for the Castroville Seawater Intrusion Project in the President's FY 96 Budget.

The Monterey County Water Resources Agency is a local government entity formed under the Monterey County Water Resources Agency Act. It is an agency with limited jurisdiction involving matters related primarily to flood control and water resources conservation, management, and development. The Salinas Valley, which is near the California coast in Monterey County is a productive agricultural area that depends primarily on groundwater as a water supply. The combination of the valley's rich soils, mild climate and high quality groundwater makes this valley unique among California's most fertile agricultural land and has earned the valley the distinction as the "Nation's Saladbowl." As agricultural activity and urban development have increased in the past forty years, groundwater levels have dropped allowing seawater from the Monterey Bay to intrude the groundwater aquifers. Seawater intrusion is extensive in the portion of the Salinas Valley near the town of Castroville. The Castroville Seawater Intrusion Project (CSIP) will provide 19,500 acre-feet of reclaimed water for irrigation use to over 12,000 acres and help solve the seawater intrusion problem by greatly reducing groundwater pumping in the project area.

The State Water Resources Control Board specifically indicated its strong support for the Castroville Seawater Intrusion Project in a 1994 letter to the USBR. The Castroville Seawater Intrusion Project is an essential component in the MCWRA's plan to deal with basin-wide groundwater overdraft and seawater intrusion. The urgency of the State Board's letter makes it all the more important that the MCWRA proceed expeditiously with the Castroville Seawater Intrusion Project.

In August 1992, the original loan request was submitted to the Bureau. Subsequent approval was received from the Secretary of Interior in May 1994. Prior to loan approval, in March 1993, the EIR/EIS for the project was certified by the Bureau. Design for the project is complete, and construction is set to begin. Through extensive discussion and negotiations between MCWRA and the USBR, a project financing plan was created. The loan repayment contract negotiations between the USBR and MCWRA were held on February 13 and 14 and March 10 of this year. The USBR made it quite clear that the original provisions in the loan application of full disbursement during the three years of construction could not be met due to federal budget shortfalls. As defined in the new repayment contract, the USBR will disburse funds to the MCWRA over an eight year period. This means that the MCWRA will receive these funds for five years after the project is operational. This also means that the MCWRA will have to acquire additional "bridge financing" to meet the needs of the Castroville Seawater Intrusion Project construction costs.

Even though the additional private debt service will increase the project costs, the critical problem of seawater intrusion demands that the project proceed. The USBR loan is a crucial link in project funding and it is imperative that annual appropriations, even at the planned reduced rate over eight years, continue. The federal funds requested under the P.L. 84-984 program will be repaid by landowners in the Salinas Valley with assessments that are currently in place. The Monterey County Water Resources Agency has spent approximately $8,900,000 of its own funds getting to this point.

Mr. Chairman, we urge you and the members of the subcommittee to give your continued support to the Bureau's request of $1,500,000 for the Castroville Seawater Intrusion Project in the President's FY 96 Budget. This appropriation when combined with the Treasury portion pursuant to Federal Credit Reform Act of $1,210,000 will produce a total loan amount of $2,710,00 for FY 96. Without your continued support, we will not be able to realize the benefit of the work completed over the past several years; and, the groundwater basin will continue to deteriorate creating a significant threat to the economy and to the health, welfare of our citizens.

Again, thank you for your support and continued assistance.

WEDNESDAY, MARCH 29, 1995.

SAN FRANCISCO AREA REGIONAL RECLAMATION FEASIBILITY STUDY

WITNESS

MICHAEL QUAN, PROJECT MANAGER, DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF SAN FRANCISCO

Mr. BARNES. Next we have Michael Quan, City and County of San Francisco.

Mr. QUAN. Good afternoon, Mr. Chairman and distinguished members of the committee. My name is Mike Quan and I represent not only San Francisco, but the almost 20 governmental agencies involved in the San Francisco Area Water Reclamation Study Project. Because of broad potential benefits of this regional water reclamation project, we are asking for a full funding of $1.5 million for the Bureau of Reclamation for fiscal year 1996.

The purpose of the San Francisco Area Water Reclamation Study is to conduct a feasibility study identifying California regions that could use high quality recycled water for such purposes as agriculture irrigation, drought protection, and other beneficial uses. This regional water project is compatible with local water reclamation projects currently ongoing, such as the South Bay Water Recycling Project in San Jose and a similar one being planned in San Francisco. We estimate that up to 400,000 acre feet a year of excess recycled water, water that exceeds maximum local usage by bay area municipalities, could be exported to regions for beneficial reuse, thus potentially freeing potable supplies for other uses.

The primary reasons why full funding for the Bureau of Reclamation is required has been included in my written statement. However, most important at stake is a critical regional partnership involving local, State, and Federal interests who have committed significant resources to this project. Major local participants include agencies in the Counties of San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa and San Joaquin. The local partners are doing everything we can to meet the local financial and staffing demands of that project. We ask for your support in securing the full $1.35 million for the Bureau of Reclamation in 1996.

Thank you.

[The statement of Mr. Quan follows:]

STATEMENT ON BEHALF OF THE

SAN FRANCISCO AREA WATER RECLAMATION STUDY

BEFORE THE U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

The Honorable John Myers, Chairman

March 29, 1995

Submitted by
Michael Quan, PE
Project Manager, Bureau of Engineering
Department of Public Works
City and County of San Francisco, California

SUMMARY POINTS REGARDING
BUREAU OF RECLAMATION'S 1996 BUDGET FOR
SAN FRANCISCO AREA WATER RECLAMATION PROJECT

- The San Francisco Area Water Reclamation Project is requesting $1.5 million in Bureau of Reclamation FY 1996 funds to continue the feasibility study of exporting excess Bay Area recycled water to other California regions for beneficial reuse. Authorization for the study (through Public Law 102-575 Title XVI of the Reclamation Projects Authorization Act of 1992) allows the USBR to fund up to 50 percent of the cost, with local participants financing the remaining 50 percent.

- The San Francisco Area Water Reclamation feasibility study -- to identify Central California regions that require a dependable source of water for such uses as agricultural irrigation and salinity control -- has expanded from the original option of agricultural reuse via the Delta Mendota Canal, to as many as five alternatives. These additional alternatives were raised through extensive public scoping meetings in several cities throughout the Bay Area and Central California. The service areas identified in the feasibility study so far are: 1) Delta-Mendota Canal (agricultural irrigation), 2) South of the Bay Area (agricultural irrigation and salinity repulsion), 3) South San Joaquin (agricultual irrigation), 4) Sacramento/San Joaquin Delta (salinity repulsion), 5) Indirect Potable Reuse (urban potable and various environmental applications).

- While the scope of the feasibility study has broadened from one to five alternatives requiring more technical analyses than originally budgeted, the funding constraints and deadlines remain the same as for the original sole direction. Phase I of the feasibility study is scheduled for completion in October of this year (1995), so that a complete environmental review of the best alternatives can be completed by **October 1997**. This deadline complies with PL 102-575 requirements for a report back to Congress not later than four years after the Bureau of Reclamation's first appropriation in October of 1993.

- All the study partners remain committed to the San Francisco Area Water Reclamation Project, and the local agencies are contributing 50 percent of the project's cost. Participants in the study include the water agencies of San Francisco, Santa Clara, Alameda and Alameda Zone 7; the wastewater agencies of San Francisco, Central Contra Costa, San Jose, Palo Alto, Dublin/San Ramon, Delta/Diablo, Millbrae; East Bay Municipal Utilities District, East Bay Dischargers Authority and South Bay Dischargers Authority. Also participating are the San Luis Delta Mendota Water Authority, the Exchange Contractors, and the California Department of Water Resources.

- Implementation of this project could potentially free up to 400,000 acre-feet of potable water for other uses, such as drought protection for municipalities, agricultural applications, or in-stream flows for fish and wildlife. From a wastewater discharge perspective, zero or near-zero discharge into San Francisco Bay could be achieved, thereby enhancing aquatic and recreational uses of the Bay.

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
THE HONORABLE JOHN MEYERS, CHAIRMAN

TESTIMONY OF **MIKE QUAN** ON BEHALF OF THE ***SAN FRANCISCO AREA WATER RECLAMATION PROJECT***

Distinguished members of the House Appropriations Committee, my name is Mike Quan and I am honored to speak to you today on behalf of the almost 20 governmental agencies involved in the **San Francisco Area Water Reclamation Project**. The **San Francisco Area Water Reclamation Project** is also known as the **Central California Regional Water Recycling Project** because the potential service areas have expanded to northern and central California, with impacts for water rights throughout the state. Because of the far-reaching implications and broad benefits of this regional water reclamation project, we feel compelled to ask for the **full funding of $1.5 million** originally requested by the Bureau of Reclamation for this project in federal fiscal year 1996.

The purpose of the **San Francisco Area Water Reclamation Project** is to conduct a feasibility study identifying California regions that could use high-quality recycled water for such purposes as agricultural irrigation or salinity control. Only excess recycled water -- water that exceeds maximum local usage by Bay Area municipalities -- would be exported to outside regions for beneficial reuse. We estimate that up to 400,000 acre feet a year of recycled water is available, the equivalent of a river's flow. This excess, high-quality water is currently disposed into the Bay, rivers and delta -- a discharge option that will be more difficult in the face of tighter discharge limitations and higher treatment standards facing the entire state.

On the other side of the water picture are the rising and competing demands for freshwater from many areas: agricultural usage which has a long and strong role in California's history; urban demands which are expected to almost triple by the year 2020, and environmental flows for fish and wildlife protection. The recently publicized water quality standards for the Bay-Delta call for freshwater diversions to the Delta of up to 1.1 million acre feet of water, most of this burden to be borne by cities and farms. We truly believe that there is a significant role the **San Francisco Area Water Reclamation Project** can play in meeting the State's burgeoning water needs now, and in the immediate future.

There are several reasons why the **San Francisco Area Water Reclamation** project needs the full funding of $1.5 million from the Bureau of Reclamation:

- Due to an extensive public scoping process, the feasibility scope of study has broadened from its original direction of exporting recycled water to the Delta Mendota Canal for Central Valley agricultural needs, to four more alternatives. These include exporting to South of the Bay Area (south Santa Clara, San Benito, etc.) for agricultural irrigation and salinity repulsion; South San Joaquin Valley (Westlands and beyond) for agricultural irrigation; Sacramento/San Joaquin Delta for salinity repulsion; and indirect potable reuse.

- While the scope of the feasibility study has broadened from one to five alternatives requiring more technical analyses than originally budgeted, the funding constraints and deadlines remain the same. Phase I of the feasibility study is scheduled for completion in October of 1995, so that a complete environmental review of the best alternatives can be completed by **October 1997.** This deadline complies with PL 102-575 requirements for a report back to Congress not later than four years after the Bureau of Reclamation's first appropriation in October 1993.

- All the study partners remain committed to the **San Francisco Area Water Reclamation Project**, and the local agencies are contributing 50 percent of the project's cost. Participants in the study include the water agencies of San Francisco, Santa Clara, Alameda and Alameda Zone 7; the wastewater agencies of San Francisco, Central Contra Costa, San Jose, Palo Alto, Dublin/San Ramon, Delta/Diablo, Millbrae; East Bay Municipal Utilities District, East Bay Dischargers Authority and South Bay Dischargers Authority. Also participating are the San Luis Delta Mendota Water Authority, the Exchange Contractors, and the California Department of Water Resources.

With an expanded scope of study, we are concerned that anything less than full funding will adversely affect our ability to conclude the necessary studies within the original timeline. Of greater importance, though, is the impact the reduced funding will have on the momentum needed to keep this critical, regional partnership intact through the end of the study.

Finally, the **San Francisco Area Water Reclamation Project** will examine if freshwater can be freed up through any of these alternatives, and what potential water exchanges could result to benefit urban, agricultural or environmental needs. It is clear to us as participants in the **San Francisco Area Water Reclamation Project** that this feasiblity study is important now, in light of increasingly stringent discharge and treatment standards, as well as important for California's future in assessing water availability, rights and transfers. The local partners are doing all we can to meet the local financial and staffing demands of this project -- we ask for your support in securing the full $1.5 million that was originally requested in the Bureau of Reclamation's 1996 federal budget.

Mr. RIGGS. I should ask, what has the President proposed in his budget?

Mr. QUAN. The President's proposed budget is $700,000. We are asking for an add-on of $800,000.

Mr. RIGGS. Okay. Thank you, Mr. Quan.

WEDNESDAY, MARCH 29, 1995.

SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM

WITNESSES

TRIXIE JOHNSON, VICE MAYOR, CITY OF SAN JOSE

ERIC ROSENBLUM, PROGRAM DIRECTOR, SOUTH BAY WATER RECYCLING, CITY OF SAN JOSE

Mr. BARNES. Next we have Trixie Johnson, Council Member from the City of San Jose.

Ms. JOHNSON. Thank you. I will give myself a promotion. I am now the Vice Mayor.

Mr. RIGGS. My list does note that. Someone has crossed out Council Member and written in Vice Mayor. So congratulations.

Ms. JOHNSON. Thank you. We also call ourselves the Capital of Silicon Valley. That is a relevant point to my testimony.

We are asking that you appropriate $9 million. The President's budget has for the second year a $1.75 million appropriation. The difference is the recommendation of the State Water Commission when they recognized the great disparity between the amount of the authorization and the current appropriations. And I will address that a little more later.

We are hoping that with this $9 million they will be closer to their authorization and will be able to assist us more in this project. We are also with this project attempting to meet some federally mandated schedules, so timing for us is critical.

This project will reduce discharges from our plant into the environmentally sensitive San Francisco Bay. In the process it will protect two endangered species, and we must stay below a federally mandated flow cap.

We have with this plant a new drought-proof water supply: Up to 20 million gallons a day for irrigation and other nonpotable uses. Congresswoman Zoe Lofgren indicated how odd it is to be talking about water supply in the time of a flood, but in the last 10 years, 7 of those years have been drought, and well below our 14 inches a year average rainfall.

This reliable water supply and the ability to treat it is critical to Silicon Valley. As Representative Lofgren stated, it takes 10 million gallons to produce one computer chip. Most of our large companies require at least a million gallons a day of water in order to operate. There are 4,000 high-tech companies dependent upon this water, 200,000 jobs. And I don't need to remind you that Silicon Valley industry is a national resource, not just a regional or a California resource. This is really what it is all about. This is our tertiary treated water.

I understand color was an issue last year. Give us the money, you can call it whatever color you like, Mr. Fazio. But with just a little bit of extra treatment and some distribution, this will provide new water for Silicon Valley.

We are committed at the local level, and this is where the disparity comes in. By the end of 1996, we will have spent $50 million. We are currently spending at the rate of $1 million a month. Next year it will be up to $6 to $7 million a month. We think the request for $9 million is right in line with the Federal partnership that we are seeking in this project.

I thank you for your time.

[The statement of Ms. Johnson follows:]

Statement of Trixie Johnson, Vice-Mayor
City of San Jose, California
on behalf of
South Bay Water Recycling
before the
United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John H. Myers, Chairman

March 29, 1995

Summary

By reducing treatment plant discharges and providing an alternative "drought-proof" source of water, South Bay Water Recycling will preserve the natural and economic environment of San Jose (California) and the high-tech industrial area of Santa Clara County known as Silicon Valley. Water recycling is a key part of a sustainable regional economy, one which includes a reliable water supply and the capacity to process the water once it has been used. An appropriation of $9 million in the 1996 fiscal year will allow the Bureau of Reclamation to maintain its authorized level of participation.

Chairman Myers, Members of the Committee:

My name is Trixie Johnson. I am a member of the City Council and Vice-Mayor of the City of San Jose, California, "Capital of Silicon Valley." I am here to ask you to appropriate to the Bureau of Reclamation in the next fiscal year $9 million for our South Bay Water Recycling project. Funding for this program is authorized in Public Law 102-575, Title XVI of the Reclamation Projects Authorization Act of 1992, Section 1607, "San Jose Area Water Reclamation and Reuse Program." I also ask that you consider this appropriation an investment in the environmental and economic health of our area, which will provide considerable dividends in the years to come.

South Bay Water Recycling is an innovative, nonpotable water reuse program designed to help protect both the natural and economic environment of San Jose, Santa Clara, and other Silicon Valley communities at the south end of San Francisco Bay. Phase 1 of the project will provide for the annual reuse of nearly 10,000 acre-feet of reclaimed water at a design and construction cost of $130 million. It will include over 60 miles of transmission and distribution pipelines, pump stations and reservoirs, which during the summer months will supply up to 20 million gallons per day (mgd) of nonpotable water for irrigation and industry. Construction of a major portion of the Phase 1 facilities is due to start this summer, and is scheduled to begin operation in November, 1997. Subsequent phases will recycle even more water by extending the pipeline to other areas or providing further treatment for potable reuse.

South Bay Water Recycling will reduce the amount of wastewater treatment plant effluent discharged to the Bay, in response to federally mandated environmental regulation. In January, 1989 the EPA and the San Francisco Bay Regional Water Quality Control Board determined that highly treated fresh water discharged from the state-of-the-art San Jose/Santa Clara Water Pollution Control Plant had reduced the salinity of nearby salt marsh, threatening the habitat of two endangered species. To prevent further marsh conversion, the Board imposed a flow cap on the plant of 120 mgd, effectively reducing the capacity of the plant to receive and treat wastewater from the Silicon Valley area of Santa Clara County.

Since flows had already exceeded that amount in previous years, there was an immediate need to divert treated wastewater from the South Bay. After extensive study, including technical investigations and market assessments, it was determined that the reuse of reclaimed wastewater would not only fulfill the Regional Board's environmental requirements, it would also provide a new reliable supply of water to a region frequently subjected to drought. The project has wide support in the community, and a citizen's advisory group has been formed to provide continuous input from the public.

It is somewhat ironic to be discussing wastewater reclamation when only last week a large part of our county was literally under water. But wet years like this one, with its damaging flood, mask a chronic water shortage not revealed by average rainfall figures. Seven out of the past ten years were drought years, in which San Jose received less than its modest average of fourteen inches of rain per year. In four of those seven drought years we received less than ten inches of rain. In short, we are a dry region, and our economic survival depends on our ability to use and reuse our water wisely.

Many ingredients are needed to sustain a healthy Silicon Valley economy. Our colleges and universities turn out well-educated workers, and our high-tech manufacturing base supports product research and development. The local financial community backs start-up companies which stimulate the expansion of existing enterprises. There are currently some 4,000 high tech companies in the San Jose Metropolitan Area, employing over 200,000 people. Some estimates project that number to nearly double in the next ten years as computer technology ventures into new markets.

But such glowing forecasts will only be realized if we in government do our part by providing the public infrastructure needed to maintain a healthy environment for residents and businesses alike. The bottom line is, our competitive global economy will not favor cities which squander either their financial or their natural capital. The successful communities of the next century will be those which make the most intelligent use of all their assets, reduce waste and turn pollution problems into opportunities for reuse.

For this reason, the City of San Jose is committed to the goal of becoming a "sustainable city" to ensure a high quality of life for present and future generations. We have initiated dozens of different programs in areas ranging from energy-efficient lighting to hazardous waste minimization. Our curbside solid waste recycling program has one of the highest rates of citizen participation among the nation's large cities. Last year we diverted 160,000 tons of recyclable materials which would otherwise have ended up as garbage in area landfills but were instead converted into usable products.

All of these efforts will come to naught, however, if we are unable to guarantee an adequate, reliable water supply, or if we lack the capacity to process the water once it has been used. It takes ten gallons of water to make one computer chip; the larger chip manufacturers in our area use nearly a million gallons of water per day. Fortunately for us, the water reclaimed by our regional treatment plant, while not quite the quality of drinking water, is perfectly suitable for many other purposes including landscape and agricultural irrigation, use in cooling towers, and a number of industrial applications. Use of recycled water will offset demand for potable water, and make more water available in times of drought. In this way, South Bay Water Recycling will allow industry to continue to thrive in Silicon Valley, generating jobs for area residents with all of the considerable benefits which come from a prosperous regional economy.

You will hear today about a number of important water recycling projects, not only in San Jose, but also in San Francisco, Los Angeles, San Diego and in other communities throughout the state. Recycled water is "smart" water because it has the lowest impact on the environment and makes the most of a limited and precious resource. Congress showed wisdom and foresight in authorizing support for water recycling. This committee in particular is to be commended for providing initial funding for these projects. Now that they are under construction, your support is more important than ever.

San Jose is grateful to have the Bureau of Reclamation as our partner in South Bay Water Recycling, and we appreciate the appropriation approved by this committee last year. By the end of the 1996 fiscal year, we will have expended nearly $50 million of local funds on project design and construction. The $9 million we are requesting for this year will enable the Bureau to reach their authorized level of participation, and will allow us to meet our federally mandated schedule.

Thank you for the opportunity to speak to you today.

Mr. RIGGS. It is quite interesting to note, very striking, that tertiary treatment of wastewater is now becoming the norm in California. Sort of setting a standard, I hope, for the rest of the country. And also hopefully generating an increased awareness of how we can use treated effluent and tertiary treated wastewater as a resource.

Ms. JOHNSON. If we did not have that level, this would be a much more expensive project.

Mr. RIGGS. Just one quick question, and that is are you part of this regional consortium that was just described?

Ms. JOHNSON. Yes, we certainly support that. I would also add we are in strong support of the flood control projects mentioned by the water district, Santa Clara Valley.

WEDNESDAY, MARCH 29, 1995.

EASTERN MUNICIPAL WATER DISTRICT LOAN

WITNESSES

JOHN BRUDIN, GENERAL MANAGER, EASTERN MUNICIPAL WATER DISTRICT

MARION ASHLEY, PRESIDENT, EASTERN MUNICIPAL WATER DISTRICT

LARRY LIBEU, DEPUTY ASSISTANT GENERAL MANAGER, EASTERN MUNICIPAL WATER DISTRICT

Mr. BARNES. Next we have John Brudin, General Manager, Eastern Municipal Water District.

Mr. BRUDIN. Good morning, Mr. Chairman, members of the committee. I am John Brudin. I am the General Manager of Eastern Municipal Water District.

I want to thank you for your continuing support of the district's small reclamation projects. The President's fiscal year 1996 budget has an appropriation in the amount of $6 million for this project, and we ask your support of this appropriation.

The unique project when completed will provide a new source of water for our district. The multifaceted project will provide essential groundwater recharge, environmental benefits, as well as additional M&I uses and supplemental agricultural water.

Additionally, I ask for your support for five projects in California in the small reclamation project loans program. Those for Temescal, for Chino Basin, for Castroville, for Monterey, and San Sevaine.

Finally, Mr. Chairman, I ask your committee to encourage your fellow Congressmen to continue supporting the Small Reclamations Projects Act so the districts like ours in the 17 western States can plan, design, and construct projects targeted for vital water infrastructure.

Thank you, Mr. Chairman.

Mr. RIGGS. Thank you.

[The statement of Mr. Brudin follows:]

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

Eastern Municipal Water District

General Manager
John B Brudin
Legal Counsel
Redwine and Sherrill
Director of the Metropolitan Water District of Southern California
Chester C. Gilbert
Treasurer
Rogers M. Cox

Board of Directors
Marion V Ashley, President
Richard R Hall, Vice President
Wm G Aldridge
Rodger D Siems
David J Slawson
Secretary
Mary C White

March 29, 1995

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Mr. Chairman, my name is John B. Brudin, General Manager of Eastern Municipal Water District. I appreciate the opportunity to submit Eastern's request for continued funding of a construction project under the provisions of the Small Reclamation Projects Act of 1956 as amended, P.L. 84-984 Loan Program, with the United States Department of the Interior, Bureau of Reclamation.

RECLAIMED WATER SYSTEM PROJECT

Eastern Municipal Water District is the local sponsor of the Bureau of Reclamation Project. Approval by the Secretary of the Interior for this project was obtained on May 23, 1991. This project provides for a new concept in water management which is resulting in significant water conservation. The Eastern Municipal Water District, like much of the arid west, is faced with a water shortage condition which is continuing to deplete the District's valuable groundwater supplies.

The project is putting into place the construction of a major transmission system and appurtenant works necessary for a Class 2 water supply system, which will 1) reduce the demands on the District groundwater supply; 2) provide for extended agricultural production; 3) provide environmental enhancement creating multipurpose wetlands for the migratory birds of the Pacific Flyway; and 4) create the potential of 990 jobs to bolster the regional economy.

In Fiscal Year 1992, 1993, 1994, and 1995, the continued support from your committee has provided over $20,000,000 in appropriations which has allowed for the completion of nearly 80% of this vital system. It is the District's understanding that the President's Fiscal Year 1995-96 Budget includes funding for this project in the amount of $6,000,000 as part of the Bureau of Reclamation Programs. During the California Water Commission hearings on March 3, 1995, the Commission supported a recommendation in this amount. We respectfully request your continued support of our project and this appropriation in the amount of $6,000,000 in the 1995-96 Fiscal Year Budget. A summary is enclosed.

On behalf of the Board of Directors of Eastern Municipal Water District, we at the District, sincerely appreciate your continued assistance in scheduling the opportunity to appear before your Committee to testify on behalf of the District Project and as part of the California Water Commission presentation.

Respectfully,

John B. Brudin
General Manager

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Main Office: 2045 S. San Jacinto Avenue, San Jacinto • Customer Service/Engineering Annex: 440 E. Oakland Avenue, Hemet, CA

SMALL RECLAMATION PROJECTS
LOAN PROGRAM

NAME OF PROJECT

Reclaimed Water Facilities, Eastern Municipal Water District, San Jacinto, California

AUTHORIZATION

P.L. 84-984 - Small Reclamation Project Act

LOCATION, DESCRIPTION, AND REPRESENTATION

The project is located in Riverside County, California, north of the San Diego County line, east of the City of Riverside and west of the San Jacinto Mountains. Project features include construction of approximately 45 miles of major pipelines, two pumping stations, and a 3 million gallon per day tertiary treatment expansion to reclaim and convey wastewater effluent to wetland areas, recreational lakes, agricultural lands and M&I users. Representation for the State of California Congressional Districts include: CA-43 - Rep. Ken Calvert (R); CA-44 - Rep Sonny Bono (R); CA-48 - Rep Ron Packard (R); and Senators Dianne Feinstein (D); Barbara Boxer (D).

JUSTIFICATION

The project will provide reclaimed water for expansion of three separate wetlands, covering nearly 600 acres as well as provide reclaimed water to over 21,500 acres of irrigated land, thus preserving treated potable water that would have been used without the proposed system. Recycling reclaimed water will also provide other important joint and conjunctive use benefits such as establishment of recreational parks and greenbelts, enhancement of wetlands, wildlife habitat, and the recharge of surplus reclaimed water into underground aquifers to improve water quality and for future drought (banking) management. This secondary water supply will, through exchange and replacement agreements, free-up limited primary water supplies in order to meet the fast-growing domestic and M&I demands in Southern California.

PROJECT PURPOSE

The water reclamation system will provide an alternate water supply system, for presently, water-short lands in the District. The enlargement of water reclamation facilities would decrease the use within the District of our limited imported domestic water supplies.

A major benefit of the project is to provide groundwater basin recharge/replenishment benefit by conveying untreated potable water to a 100 acre recharge basin within an area of the District known as the Little Valley near Bautista Canyon, east of Hemet, California. The recharge of this basin will enhance the declining groundwater supplies of the neighboring communities of Hemet and San Jacinto, California. Additionally, this recharge area will provide environmental enhancement, in the form of wetlands habitat, particularly for the benefit of waterfowl traveling the Pacific Flyway.

The system will also provide the enhancement and enlargement of two other wetland areas. One wetland expansion/creation, approximately 160 acres, is proposed in the general vicinity of the California Fish and Game, San Jacinto Wildlife Refuge. The other wetland expansion/creation is located along the Temescal Creek from Lake Elsinore to the Santa Ana River, encompassing approximately 300 acres. These wetlands areas will also have the potential to function as groundwater recharge areas, so that the water conveyed to these areas will percolate into and replenish the underlying groundwater basins.

PROJECT FINANCING

The District is seeking continued funding from its approved U.S. Bureau of Reclamation, Small Projects Act cost share loan of $31,100,000.

FINANCIAL/ECONOMIC FACTORS:

Repayment: 15 years Loan Factor: 28.2% B/C Ration: 2:1

FUNDING SCHEDULE:

BUDGET REQUESTS				CAPABILITY		
YEAR	FEDERAL	NON-FEDERAL	TOTAL	FEDERAL	NON-FEDERAL	TOTAL
*FY92	$3,054,465	$500,000	$3,554,465	-0-	-0-	$3,554,45
*FY93	$5,358,380	$2,000,000	$7,358,380	-0-	-0-	$7,358,380
*FY94	$8,682,100	$2,800,000	$11,482,100	$2,000,000	$2,000,000	$15,482,100
FY95	$4,160,000	$2,000,000	$6,160,000	-0-	-0-	$6,160,000
FY96	$6,000,000	$3,000,000	$9,000,000	-0-	-0-	$9,000,000
FY97	$3,887,700	$3,321,400	$7,209,100	<$2,052,155>	<$1,321,400>	$3,373,555

* Actual Expenditure

JOBS CREATED

Up to 990 jobs will be created by design, manufacture, and construction of this project.

TOTAL PROJECT COST $ 46,046,400

PROJECT STATUS

All facilities are either in design or construction with project completion anticipated in June of 1997.

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WEDNESDAY, MARCH 29, 1995.

CHINO BASIN DESALINATION PROJECT

WITNESS

NEIL CLINE, GENERAL MANAGER, SANTA ANA WATERSHED PROJECT AUTHORITY

Mr. BARNES. Next we have Neil Cline, General Manager of Santa Ana Watershed Project Authority.

Mr. CLINE. Mr. Chairman, members of the committee, thank you for the chance to be here today to participate and to present the Santa Ana Watershed Project Authorities request for Federal assistance to the construction of the Chino Basin Desalination Project.

It is the commission of the authority's intent that with your help to build a desalting plant that will convert an environmental disaster into an environmental success. The project has been included in the President's budget. We appreciate your continued help.

Mr. BARNES. Thank you very much.

Mr. RIGGS. That is short and sweet.

Mr. BARNES. That is the best statement of the morning, I guess.

Mr. RIGGS. Let me ask, though, are you striving to, through a desalination project, create additional drinking water supply?

Mr. CLINE. It will provide drinking water supplies, it will convert brackish water to potable supply for four cities in the basin area.

Mr. RIGGS. Very interesting. Thank you.

[The statement of Mr. Cline follows:]

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Mr. Chairman, Members of the Committee, thank you for the opportunity to participate today to present the Santa Ana Watershed Project Authority's request for federal assistance in the construction of the Chino Basin Desalination System. My name is Neil Cline. I am the General Manager of the Authority, a joint powers agency composed of the five major water districts that manage the water resources of the Santa Ana River area in Southern California. The Authority, through its member districts, serves over four million people in San Bernardino, Orange and Riverside Counties.

The Chino Basin Desalination Program is a major component of the water quality protection plan adopted by the State of California Regional Water Quality Control Board. The plan is designed to protect water resources in the Santa Ana Watershed area from further degradation, and to extend the utility of scarce local water supplies through environmentally sound processes. The Chino Groundwater Basin, an area of about 220 square miles, is located upstream of densely populated Orange County. Water quality in the region is degrading due to previous and ongoing agricultural activities. Irrigation drainage over the past 100 years has deposited high concentrations of salt and nitrates in the soil and groundwater. At the present time there are over 300,000 dairy cattle concentrated on 15,000 acres of land in the basin. It is estimated that the dairy operations, despite strong efforts to manage quality issues, contribute as much as 27,000 tons of salt annually to the groundwater supplies in the area. Municipal water wells in the communities of Norco, Jurupa and the City of Chino have been abandoned due to salt and nitrate contamination. Recent studies have concluded that if left unchecked the salt and nitrates will further degrade local groundwater, threatening over 50% of the basins supply, and that downstream water resources in Orange County are equally in jeopardy.

The Chino Basin Desalination System will be constructed and operated to protect groundwater resources in the area from further deterioration, to protect the Santa Ana River from degradation, and to facilitate expanded conjunctive use of imported and local water supply. The project will extract and desalt about 8,000 acre-feet per year of salt laden, brackish groundwater from the Chino Basin. Desalting will be accomplished by installing an 8 million gallon per day desalination plant that will produce a potable water for use in nearby cities and on local farms. The desalter will be supplied poor quality water from a series of extraction wells, specifically located to intercept the migration of contaminated water. As much as 20,000 tons of salts will be removed from the basin annually by this operation.

The estimated cost of the desalting plant and appurtenant features is $47,600,000. Local agencies, including a loan from the State of California have contributed about $15,600,000 to this program to date. The Authority is seeking the estimated balance of $32,000,000 through the U.S. Bureau of Reclamation PL 84-984 Small Reclamation Projects Act Program. The loans from the State and Federal government will be repaid from proceeds derived by marketing the desalted water to local communities, who to meet their increasing demands, will otherwise be forced to depend upon imported supply from Northern California, conveyed by the State's Department of Water Resources from the Sacramento-San Joaquin Delta to the Metropolitan Water District of Southern California, a supply that has steadily diminished over the past several years. The project has the support of local water jurisdictions, the local and State Water Quality Control agencies, local agricultural interests and the Metropolitan Water District. To date, SAWPA's member districts have invested $2,000,000 in preliminary investigations and facility planning for this project.

The schedule for the Chino Basin Desalination Program is for preliminary and final design to be completed by October 1995, with construction to begin in December 1995. The project will be accomplished using multiple construction contracts and is anticipated to be completed with water deliveries in January 1997.

The project benefits of this important program will be measured by:

1. Protection of ground and surface water supplies.
2. Protecting the environment from continued salinity degradation.
3. Assuring the long range viability of agriculture in the region.
4. Providing additional water in an area of water scarcity.
5. Providing as many as 1,000 design and construction jobs in an area where unemployment is among the highest in the United States.

Your support of this vital program will be greatly appreciated by local and regional water resource agencies and the people they serve.

Thank you.

WEDNESDAY, MARCH 29, 1995.

TEMESCAL VALLEY PL 984 LOAN

WITNESSES

JOHN HOAGLAND, ACTING GENERAL MANAGER, ELSINORE VALLEY MUNICIPAL WATER DISTRICT

D. JAMES LAUGHLIN, CONSULTANT

Mr. BARNES. Next we have John Hoagland, who is Acting General Manager, Elsinore Valley Municipal Water District.

Mr. HOAGLAND. Mr. Chairman, members of the committee, my district thanks the committee for your past recommendations from which we have benefited.

Details of the Temescal Valley project, which will preserve agricultural water supplies and increase regional flexibility for all water resources, have been submitted in writing.

Our Bureau of Reclamation small project loan is funded in the current Federal budget and our district has approved the contract with the Bureau. We respectfully request that the committee support the President's proposed budget funding of $1,397,000 for fiscal year 1996. Thank you very much.

[The statement of Mr. Hoagland follows:]

Elsinore Valley Municipal Water District

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United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
Honorable John Myers, Chairman

March 29, 1995

The Temescal Valley Project is a public works water project which is being sponsored by EVMWD to develop and manage local water resources and to improve the economy of western Riverside County of southern **California.**

The importance of this project as we plan for the next century cannot be overstated. It will ensure the ability of the District to meet the growing water requirements of an **expanding population** in southern California while preserving the existing water resources on which agriculture has relied for over a century. The project has been conceived in a manner which will keep impacts to the environment to an absolute minimum. Approximately **6,000 acres of citrus** are under production in this area. Much of the crop is exported to trading partners in the Pacific Rim, which has a positive effect on the balance of trade with these countries.

The Temescal Valley Project addresses **national priorities** in several areas. EVMWD and the Temescal Valley Project are in key positions for **regional management** of water and reclaimed water supplies. Plans by Eastern MWD, located upstream from EVMWD on the San Jacinto River, for construction of a **desalter** will require a pipeline for the disposal of brine. Construction of the Temescal Valley Project will coordinated with other local agencies so that it can include installation of a **brine line** in the same pipe trench as the water supply line. The cost of the brine line will be reduced through this cooperation with the Santa Ana Watershed Project Authority, Eastern MWD, other local agencies and Elsinore Valley MWD. The Temescal Valley Project will allow Elsinore MWD to contribute additional reclaimed water to the flows in the Temescal Wash, a significant riparian **wetlands** which is the habitat of the Least Bell's Vireo, an **endangered species** of bird. The Temescal Valley Project is a key element in Elsinore Valley MWD's **total water management** planning for the challenges of the next century.

Additionally, the Temescal Valley Project will contribute at least **900,000 man-hours of employment** at a time when unemployment is estimated at 10.25 percent in the area served.

Mr. RIGGS. What is the nature of your project?

Mr. HOAGLAND. Our project is an agricultural supply project. It has pipes and tanks to enhance agricultural water in an area of our district called the Temescal Valley, south of Corona.

Mr. RIGGS. Thank you.

Mr. BARNES. The item 36, the West Basin Municipal Water District submitted a statement.

[The statement of Mr. Atwater follows:]

UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

THE HONORABLE JOHN T. MYERS, CHAIRMAN

STATEMENT OF RICHARD W. ATWATER, GENERAL MANAGER

WEST BASIN MUNICIPAL WATER DISTRICT

AND

CENTRAL BASIN MUNICIPAL WATER DISTRICT

March 29, 1995

WEST BASIN MUNICIPAL WATER DISTRICT
AND
CENTRAL BASIN MUNICIPAL WATER DISTRICT

WATER RECYCLING PROJECTS

Mr. Chairman and members of the Subcommittee, thank you for providing me an opportunity to testify today on the U.S. Bureau of Reclamation appropriations for fiscal year 1996.

The West Basin Municipal Water District (WBMWD) supports the $9.3 million in the Bureau's appropriation under the authorization of Title XVI of P.L. 102-575. Section 1613 of Title XVI, Los Angeles Area Water Reclamation and Reuse Project, provides that the Secretary is authorized to participate with WBMWD and the City of Los Angeles in the design and construction of water recycling facilities to produce 120,000 acre-feet of recycled water annually. The federal share shall not exceed 25 percent of the total construction costs (and no federal funds are to be provided for operation and maintenance).

Section 1614 of Title XVI. San Gabriel Basin Demonstration Project, similarly authorizes the Secretary to participate with the Metropolitan Water District of Southern California (MWD), Main San Gabriel Water Quality Authority, Central Basin Municipal Water District (CBMWD), and the Upper San Gabriel Valley Municipal Water District in a comprehensive conjunctive use program. CBMWD is constructing the Rio Hondo In-lieu Recycling Project component of the San Gabriel Demonstration Project. The FY 1996 budget submitted by the President includes $9.7 million for Section 1614. ***CBMWD supports this amount in the Bureau of Reclamation's budget.***

The West Basin Municipal Water District and Central Basin Municipal Water District today have under construction the largest water recycling and wastewater reuse program in the United States. Total design and construction expenditures to date have exceeded $200 million (1991-1994), and during the next three years, the Districts expect construction expenditures to be an additional $100 million. The program will create approximately 2,500 construction jobs and over 5,000 indirect jobs.

WEST BASIN MUNICIPAL WATER DISTRICT and CENTRAL BASIN MUNICIPAL WATER DISTRICT

The West Basin Municipal Water District and Central Basin Municipal Water District are located in the coastal plain of Los Angeles County. Both Districts are member agencies of the Metropolitan Water District of Southern California and receive two-thirds of their annual supply from MWD's imported water delivery system. The Districts' other sources of supply are our local groundwater and recycled water. Both Districts were established by popular elections under the California Special Districts Act for Municipal Water Districts (WBMWD was organized in 1947 and CBMWD in 1952). Forty-one cities are within the boundaries of the

Districts, with an overall population of approximately 2.4 million. The Districts wholesale water to approximately 50 separate retail water utilities.

The two Districts are governed by separately elected five-member Boards of Directors, but share the same modest administrative and engineering staff (34 full-time employees). Most of the Districts' water management programs and water recycling projects are jointly administered to save costs.

LOS ANGELES AREA WATER RECLAMATION AND REUSE PROJECT

WBMWD and CBMWD currently have under design and construction the largest water recycling program in the United States. These water recycling projects, in combination with the Districts' water conservation, groundwater management and desalination projects will reduce their need for imported water from Northern California by over 100,000 acre-feet annually. These projects have multiple benefits to Southern California:

- Provide a more dependable water supply and reduce the likelihood of water rationing;
- Lower the cost of water to industry (e.g., refineries, aerospace firms, textile manufacturing) and thereby provide incentives to not relocate;
- Environmental protection - reduce by 25 percent the wastewater discharged into Santa Monica Bay (an EPA designated National Estuary);
- Create new jobs, both construction related and permanent, to operate and implement the Districts projects and programs; and
- By reducing the use of imported water from Northern California (including the Mono Basin and the Sacramento Delta watersheds), the Districts will assist in the "statewide water solution" and significantly help in protecting the fish and wildlife resources in northern California.

The Districts' water recycling projects have received widespread public support from environmental, community, and business groups. The water recycling projects are also an excellent example of local governmental cooperation. The City of Los Angeles, which owns and operates the Hyperion wastewater treatment plant (the largest plant on the West Coast), has contracted with West Basin for the supply of the wastewater in return for 25,000 acre-feet of the treated recycled water for use within the city boundaries. In addition, the CBMWD has contracts with the Los Angeles County Sanitation Districts for treated recycled water from two of its water reclamation plants to distribute over 20,000 acre-feet annually through 70 miles of pipeline distribution systems. MWD has agreed to be a financial partner in these projects by contributing $154/acre-foot for each acre-foot of recycled water produced and reused (a financial commitment of over $200 million). To ensure the financial feasibility of these recycling projects, the Districts have imposed annual property owner water standby charges which provide approximately $13 million each year for the payment of the water revenue bond debt service until the recycled water sales are sufficient to pay for annual operation and maintenance and bond debt service.

The Administration has committed to $50 million of the total $200 million construction costs of the West Basin Water Recycling Program. In FY 1994, the Bureau of Reclamation provided a $5 million grant and in FY 1995 a $6.9 million grant. The planned contribution is as follows:

	WBMWD	BOR GRANTS
FY 94	$ 75 million	$ 5 million
FY 95	$ 90 million	$ 6.9 million
FY 96	**$ 15 million**	**$ 8.1 million**
FY 97	$ 10 million	$ 15 million
FY 98	$ 10 million	$ 15 million
Total	$ 150 million	$ 50 million
Grand Total	**$ 200 million**	

Phase I of the West Basin Water Recycling Project began delivering water to customers in February 1995 (approximately 20,000 AF). Phase II is under design, and construction will be initiated in the fall of 1995. Phase II construction will be completed in late 1997 and will increase the use to 30,000 AFY by distributing recycled water to all the major refineries in Los Angeles County. Additional expansions of the water reclamation plant would be constructed in phases allowing for the ultimate capacity of approximately 100,000 AF (Year 2000).

RIO HONDO IN-LIEU RECYCLING PROJECT

The Central Basin Municipal Water District's Water Recycling Program is comprised of both the Century and Rio Hondo Recycled Water Projects.

The Century Recycled Water Project was completed in 1993 and consists of approximately 35 miles of recycled water distribution pipeline, serving the cities of Downey, Bellflower, Paramount, Lakewood, Norwalk, Compton, South Gate, and Santa Fe Springs. Currently, recycled water from the Los Angeles County Sanitation District's 37.5 mgd (42,000 AFY) Los Coyotes Water Reclamation Plant is being delivered to over 60 sites, with a combined annual demand of 3,400 AFY. Ultimately, recycled water will be delivered to over 100 customer sites, with an annual demand of approximately 6,800 AFY. The total construction cost of this project was $23.5 million.

The Rio Hondo In-lieu Recycling Project is under construction. To date (March 1995), approximately $25 million has been expended on pipelines and a pumping station located in Pico Rivera. When construction is completed in 1997, the Rio Hondo In-lieu Recycling Project will consist of over 46 miles of distribution pipelines, three storage tanks, two pump stations, and will interconnect with the Century and West Basin water recycling distribution systems. Recycled water from the Sanitation District's 100 mgd San Jose Creek Water Reclamation Plant, located north of Whittier, will be delivered to the cities of Whittier, Pico Rivera, Santa Fe Springs, Commerce, Montebello, Vernon, Huntington Park, Bell, Bell Gardens, and Cudahy. Approximately 13,000 AFY of recycled water will be delivered to over 170 industrial and landscape users. The total construction costs for the Rio Hondo Project distribution pipelines, storage tanks, and pump stations is estimated at $64 million.

In FY 1994 and FY 1995, the Bureau of Reclamation contributed $5.2 million in Federal grants to date for the construction costs, and the District has expended to date approximately $25 million. The planned funding contributions are listed below:

Rio Hondo Water Recycling Project

	CBMWD	BOR GRANTS
FY 94	$ 20 million	$ 2 million
FY 95	$ 10 million	$ 3.2 million
FY 96	**$ 10 million**	**$ 5.8 million**
FY 97	$ 8.0 million	$ 5.0 million
Total	$ 48.0 million	$ 16 million
Grand Total	**$ 64 million**	

SUMMARY/CLOSING REMARKS

West Basin Municipal Water District and Central Basin Municipal Water District have initiated construction of the largest water recycling program in the United States. These "state- of-the-art" recycling projects will ultimately recycle over 100,000 acre-feet annually, enough drinking water for 400,000 people. These water projects, more than any other in California, will provide more benefits to more people and the environment: conserve precious imported water from Northern California and Mono Lake, reduce wastewater pollution to Santa Monica Bay, and create jobs in south-central Los Angeles. In California, it is unique that a water project has received such a broad array of public support, including the Los Angeles County Taxpayers Association, Congress of Senior Citizens, Mono Lake Committee, Sierra Club, Heal the Bay, and many other environmental interest groups, and business and chamber groups, and elected officials from throughout the state. But the most important factor is the creation of local jobs in south-central Los Angeles communities and providing industry with a new, dependable and economical water supply. Mr. Chairman, thank you again for the opportunity to testify today.

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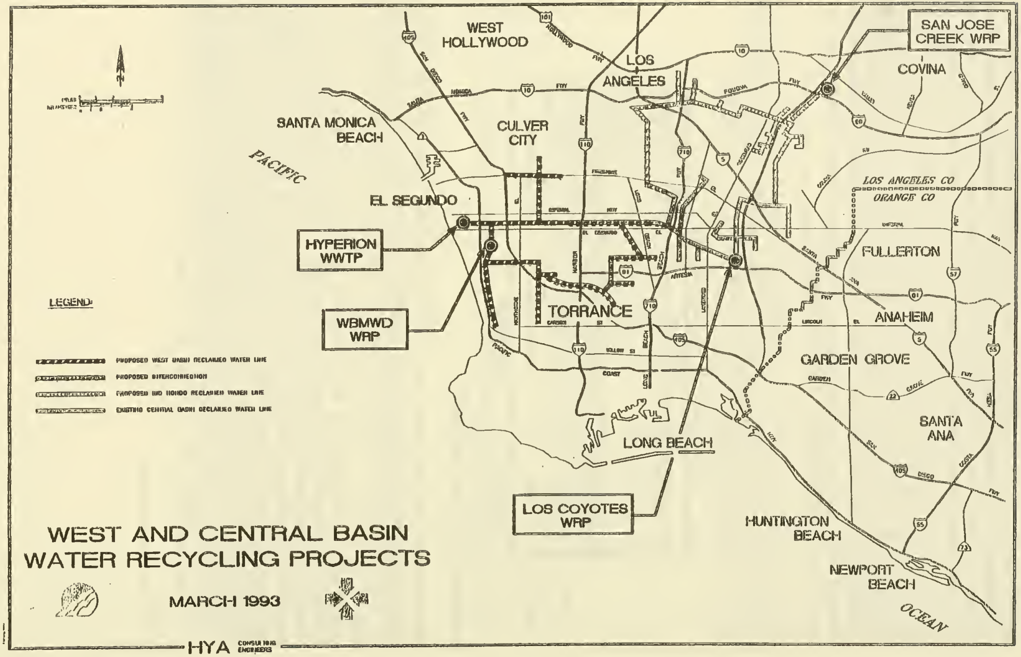
WEST AND CENTRAL BASIN WATER RECYCLING PROJECTS
MARCH 1993
HYA CONSULTING ENGINEERS
LEGEND
PROPOSED WEST BASIN RECLAIMED WATER LINE
PROPOSED INTERCONNECTION
PROPOSED RIO HONDO RECLAIMED WATER LINE
EXISTING CENTRAL BASIN RECLAIMED WATER LINE
SAN JOSE CREEK WRP
HYPERION WWTP
WBMWD WRP
LOS COYOTES WRP
WEST HOLLYWOOD
LOS ANGELES
COVINA
SANTA MONICA BEACH
CULVER CITY
PACIFIC
OCEAN
EL SEGUNDO
TORRANCE
LONG BEACH
LOS ANGELES CO
ORANGE CO
FULLERTON
ANAHEIM
GARDEN GROVE
SANTA ANA
HUNTINGTON BEACH
NEWPORT BEACH
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73

WEDNESDAY, MARCH 29, 1995.

ORANGE COUNTY REGIONAL WATER RECLAMATION PROJECT

WITNESS

WILLIAM R. MILLS, JR., GENERAL MANAGER, ORANGE COUNTY WATER DISTRICT

Mr. BARNES. Next we have William R. Mills, who is the General Manager of the Orange County Water District.

Mr. MILLS. Thank you, Mr. Barnes.

Mr. Chairman and members of the committee, today about 250 million gallons a day of wastewater is discharged to the Pacific Ocean in northern Orange County.

The Orange County regional project will divert about 20 percent of that, or 15 million gallons per day, provide advanced water treatment, then pump that water some 13 miles inland to our groundwater recharge facilities, where the water will be stored and distributed throughout the groundwater basin to our pumpers.

Ultimately, the project will double in size and provide enough water each year for nearly 1 million residents of Orange County. The project will also provide a high degree of water supply reliability for Orange County, as well as the region as a whole. And the project will also reduce the need to import water from the northern part of the State.

This is a very innovative project. The project will incorporate new and emerging advanced wastewater treatment processes, and will be a proving ground for testing and demonstrating how water treatment technologies aimed at reducing the cost of water purification.

We are requesting this year a $600,00 authorization appropriation, which would be matched locally by $1.8 million. It is not now in the President's budget. We request that it be an add-on. And it is authorized under Public Law 102–575. Thank you.

Mr. RIGGS. Thank you.

Mr. BARNES. Thank you.

[The statement of Mr. Mills follows:]

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Second Vice President
WILLIAM R MILLS JR
General Manager
MARY E JOHNSON
District Secretary
CLARK IDE
General Counsel

UNITED STATES HOUSE
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
THE HONORABLE JOHN MYERS, CHAIRMAN

PROJECT: Orange County Regional Water Reclamation Project

SUBMITTED BY: William R. Mills Jr., P.E., General Manager
Orange County Water District
Fountain Valley, California

SUMMARY

The Orange County Regional Water Reclamation Project will produce a new, cost-effective, local water supply by developing wastewater that is currently discharged into the ocean. Phase I of the project is being planned as a demonstration project that will produce about 50,000 acre-feet per year of reclaimed water by the year 2000, primarily for groundwater replenishment. The project will ultimately develop 100,000 acre-feet per year of reclaimed water by the year 2020. Phase I will incorporate various emerging advanced water treatment technologies such as microfiltration, ultrafiltration and different types of reverse osmosis membranes. By incorporating these new technologies, this project has the potential to change the course of the water industry throughout the country. This landmark water project is being jointly developed by the Orange County Water District (OCWD) and County Sanitation Districts of Orange County (CSDOC) in California.

REQUEST AND RECOMMENDED ACTION

That the Committee on Appropriations, Subcommittee on Energy and Water Development approve $600,000 in grant funding from the U.S. Bureau of Reclamation's FY 96 budget to assist in the development of the environmental study, health effects study, public outreach program, and preliminary design for Phase I of the Orange County Regional Water Reclamation Project. OCWD and CSDOC will provide matching local funds of up to $1.8 billion for these activities.

BACKGROUND

The Orange County Water District is responsible for managing the resources and water quality of the Orange County groundwater basin. OCWD owns and operates the groundwater replenishment basins located on 1,600 acres along the Santa Ana River in the City of Anaheim. OCWD also operates two water recycling plants: Water Factory 21 and the Green Acres Project that provide supplies for seawater barrier protection, landscape irrigation and industrial uses. OCWD's service area currently consumes about 460,000 acre-feet (afy) per year of water; of which about 310,000 afy is groundwater, 130,000 afy is imported water, and the remainder is local run-off and reclaimed water. The proposed project will significantly augment the local groundwater supplies and reduce demands for imported supplies in OCWD's service area.

INTRODUCTION

OCWD and County Sanitation Districts of Orange County propose to jointly develop the Orange County Regional Water Reclamation Project. The project will produce a new, cost-effective, reliable, local water supply by developing CSDOC's wastewater that is currently discharged into the ocean. OCWD will primarily use the reclaimed water to maximize the storage capabilities of the groundwater basin and reduce Orange County's dependence on imported supplies. As a result, this project will decrease the region's dependence on Colorado River and State project water supplies. Locally, the project's water will enhance the environment for the more than 100 wildlife species and the recreational areas in and around OCWD's recharge facilities, located in Anaheim.

It is anticipated that the proposed project will produce water of better quality than the Santa Ana River water currently used for groundwater recharge. OCWD staff have met and will continue to meet with the Department of Health Services and Regional Board staff to address regulatory issues associated with this project.

To ensure proper development of the project and to maximize the project's benefits, OCWD and CSDOC also intend to work closely with community groups as the project progresses. OCWD and CSDOC staff recently completed the project's feasibility study report.

PROJECT DESCRIPTION

Secondary effluent from CSDOC's Plant No. 1 will be the source water supply for the project. To remove nitrogen, salts and organics, Phase I of the project proposes to incorporate the latest in membrane treatment technologies with the use of microfiltration or ultrafiltration and reverse osmosis. This project represents the first large-scale water recycling effort to incorporate these emerging technologies and attempt to compile the much needed reliability and efficiency data on these treatment processes. The project's product water will then be pumped about 13 miles through a five to six foot pipeline located within the Santa Ana River right-of-way to OCWD's existing recharge basins in Anaheim. Phase I of the project is being developed to produce about 50,000 afy of reclaimed water by the year 2000. Phases II and III will develop an additional 25,000 afy of reclaimed water by the years 2010 and 2020. Thus, this landmark water reclamation project will ultimately produce 100,000 afy of reclaimed water.

SUMMARY OF BENEFICIAL USES

The project's water will primarily be utilized for replenishment of the Orange County groundwater basin. The new water will reduce the County's reliance on increasingly costly, imported water supplies from the Colorado River and State Water Project. By providing a reliable, local water supply, OCWD will enhance the areas in and around its existing replenishment basins, and create both environmental and recreational benefits. Additionally, by transporting the reclaimed water along the Santa Ana River, OCWD will offer interested irrigation and industrial users along the river the opportunity to utilize the project's water.

WATER SUPPLY BENEFITS

The proposed project will produce a new, cost-effective, local water supply that will increase the supplies in the Orange County groundwater basin. Thus, the region's reliance on imported water supplies from both the Colorado River and Northern California will be decreased. With this new, drought-proof, local water supply, the area served by the Orange County groundwater basin will reduce its vulnerability to local and state-wide droughts.

Because Phase I of the project is being developed to include testing of emerging technologies, this project has potential to change the course of the water industry throughout the country.

ENVIRONMENTAL BENEFITS

The project will provide additional water for the recharge facilities adjacent to the Santa Ana River; thereby enhancing the environment for the more than 100 local wildlife species, including the White Pelican and the Blue Heron. The project will also increase the recreational value of the surrounding area by providing more water for sport fishing and improving the aesthetics along the horse, bicycle and jogging trails.

The project will maximize the development of local water supplies primarily utilizing existing government-owned right-of-way; thereby minimizing disruption in the community during construction and operation.

COMMUNITY BENEFITS

A significant number of construction and maintenance jobs will be created through development and operation of the project. As part of this project, a Water Reclamation Enterprise Zone is being proposed to encourage water-reliant businesses to establish themselves along the Santa Ana River.

Additional recreational activities may be created at the recharge basins and the surrounding areas as a result of having the project's water available year around.

PROJECT SCHEDULE AND COSTS

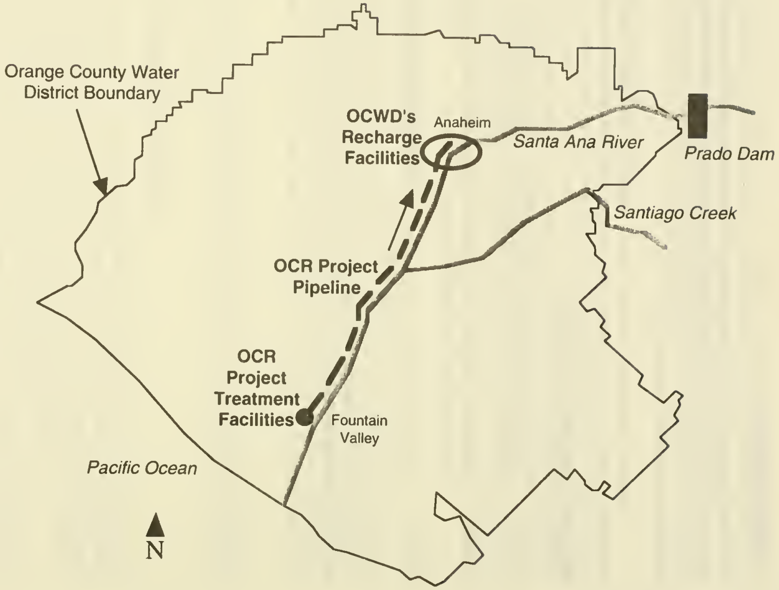
Phase I: 50,000 acre-feet per year of reclaimed water by the year 2000.
Estimated Cost: $167.3 to $176.2 Million.

Phase II: Additional 25,000 acre-feet per year of reclaimed water by the year 2010.
Estimated Cost: $49.0 to $56.7 Million.

Phase III: Additional 25,000 acre-feet per year of reclaimed water by the year 2020.
Estimated Cost: $47.4 to $52.7 Million.

This project is expected to produce water at a cost that is competitive compared to the future cost of imported water.

Orange County Regional Water Reclamation Project
Facility Map



WEDNESDAY, MARCH 29, 1995.

SAN DIEGO AREA RECLAMATION AND REUSE—ESCONDIDO WATER RECLAMATION PROJECT

WITNESSES

JERRY C. HARMON, COUNCIL MEMBER, CITY OF ESCONDIDO
DAVID CHAPMAN, CITY ATTORNEY, CITY OF ESCONDIDO
GEORGE LOHNES, UTILITIES MANAGER, CITY OF ESCONDIDO

Mr. BARNES. Next we have Jerry Harmon, Council Member, City of Escondido.

Mr. HARMON. Mr. Chairman and members of the subcommittee, it is a real pleasure to appear before you and to thank you again for the funding you have provided two years in a row.

I am pleased that the Bureau of Reclamation agrees with you and us and has put the Escondido water reclamation project in the budget request as part of the San Diego Area Water Reclamation Program. At this point, I would like to ask to include in the record a description of the program complete with a map, so you will know exactly where everything is.

Mr. RIGGS. Without objection.

Mr. HARMON. With the funding you have provided, we are much closer to the breaking—to breaking ground and making this reclamation project a reality. Total project cost will be about $69 million. We have already spent $7 million of Escondido's local funds to get this far, and are asking for a total Federal contribution of only $17 million. That means that Escondido's local contribution will be about $52 million, or roughly three-quarters of the project cost. We believe that this is the kind of local effort you are looking to support in these days of tight budgets, and hope you will, in fact, support us this year so we can stop wasting a valuable resource and convert it to good economic use.

Thank you.

Mr. RIGGS. Is this project in the President's budget?

Mr. HARMON. Yes, it is.

Mr. RIGGS. Thank you.

Mr. BARNES. Thank you.

[The statement of Mr. Harmon follows:]

CITY OF
ESCONDIDO
201 NORTH BROADWAY
ESCONDIDO, CA 92025

Jerry C. Harmon, City Councilmember
(619) 741-4638, FAX (619) 741-7541

Testimony of

JERRY C. HARMON

Council Member and Former Mayor, City of Escondido, California

on behalf of the

SAN DIEGO AREA WATER RECLAMATION PROGRAM

Consisting of
Escondido Water Reclamation Program
San Diego Water Reclamation Program
San Diego Repurification Program
Padre Dam Municipal Water District Reclamation Program

March 29, 1995

before the
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
The Honorable John T. Myers, Chairman

Sid Hollins, Mayor
Elmer C. Cameron, Mayor Pro-Tem
Richard A. Foster
Jerry C. Harmon
Lori Holt Pfeiler

Good morning Mr. Chairman and members of the subcommittee, I am Jerry Harmon, City Council Member of Escondido, California. I have previously appeared before this subcommittee as the mayor of Escondido, testifying on behalf of the San Diego Area Water Reclamation Program and in support of funding for its construction. I appreciate the opportunity to address you again today and would like to thank this subcommittee and in particular you, Mr. Chairman, and former Chairman Bevill and Mr. Fazio for the support you gave our project in each of the last two appropriations bills. The commitment you have shown to our project continues to benefit the people of San Diego County and its surrounding environment.

The San Diego Area Water Reclamation Program, in particular the Escondido Water Reclamation Program which I know the most about, is a proactive attempt by regional and city leaders to address the region's historic scarcity of available and affordable potable and non-potable water for residential and commercial uses. San Diego County, especially the North County where Escondido is located, has experienced a tremendous population influx over the last 20 years. While our infrastructure has kept pace, occasional long term investments, like the water reclamation program, are needed to keep up with growth demands for water -- a limited resource in our desert region. Since 1960, the population of Escondido has increased dramatically, as has the number of new businesses, not to mention our continued presence as an agriculture center. Through local planning and leadership, Escondido continues to attempt to meet the challenge of maintaining a high quality of life for its people, and with this subcommittee's continued support, can make it a reality.

While we are pleased with the increased amount of water that will be made available to the county as a result of this program, we must not overlook what this program will mean to the environment of the county and state. Currently, the city's waste water -- treated to secondary standards -- is piped overland to the Pacific Ocean and discharged at a depth of 150 feet in 8,000 feet offshore. While there is no threat to the ocean or those or rely on the ocean for food or recreation, it seems to be a huge waste of this precious resource for communities in the desert of southern California.

State-of-the-art design improvements to Escondido's existing treatment plant, the Hale Avenue Resource Recovery Facility, would expand the facility's reclaimed water capacity to 18 million gallons per day. This project will significantly increase the amount of reclaimed water available for uses not requiring potable water, including agricultural applications, irrigation of golf courses, parks, athletic fields, roadway landscaping, school landscaping, and general decorative landscaping.

The Escondido Water Reclamation Program has received federal funding for its water reclamation program two consecutive years for a total federal contribution of $760,000. In FY 1994, the Escondido Water Reclamation Program received $400,000. Last year, as part of the San Diego Area Water Reclamation Program, Escondido received $360,000 out of a total appropriation of $2.5 million.

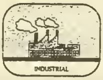
The Bureau of Reclamation's FY 1996 budget request includes $1 million for the Escondido Water Reclamation Program, as part of a larger $2.34 million appropriation for the San Diego Area Water Reclamation Program.

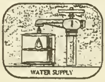
Escondido has budgeted for 75 percent of the program's total cost of $69.931 million. A total federal contribution of 25 percent, or $17.483 million, is needed to fully realize the Escondido Water Reclamation Program.

As a city leader, I understand the need to establish strict budget priorities and to stick to them. Public servants at all levels of government today are facing very difficult spending decisions. But the truth is that the San Diego Area Water Reclamation Program has been favorably reviewed by this subcommittee and the Senate subcommittee, the California Water Commission, and regional officials back home in San Diego County. In fact, the California Water Commission, which reviews the entire state's water needs, included a $9 million FY 1996 recommendation for the San Diego Area Program. This is well above the Administration's budget request of $2.34 million for the program, but recognizes the reality of our need. In Escondido, we are proud that those closest to California's water management perceive the merit and worthiness of our project in comparison with the state's total water needs.

Mr. Chairman and members of the subcommittee, I respectfully ask for your continued support for this ever increasing important regional waste water reclamation program. We accept our responsibility to manage wisely our most precious natural resource through reclamation efforts.

SAN DIEGO AREA
Water Reclamation Program





A REGIONAL EFFORT BY THE CITIES OF SAN DIEGO, ESCONDIDO, POWAY, THE PADRE DAM MUNICIPAL WATER DISTRICT, THE OTAY WATER DISTRICT, AND THE SAN DIEGO COUNTY WATER AUTHORITY

JANUARY 1995

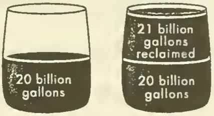
SAN DIEGO AREA WATER RECLAMATION PROGRAM

- The San Diego Area Water Reclamation Program is an ambitious, long-term effort to reduce regional reliance on imported water in a safe, cost-effective manner.

- The program will achieve its goal by reclaiming and reusing water for a variety of purposes, from Escondido in the north to the U.S.- Mexico border in the south.

- Ultimately, the program will produce up to 21 billion gallons (64,600 acre-feet) annually, more than doubling the region's average local water supply.

- Development of reclaimed water will help ensure the reliability of the San Diego region's water supply. San Diego typically imports 90 percent of its water because local sources are inadequate.



Average local water supply 1995

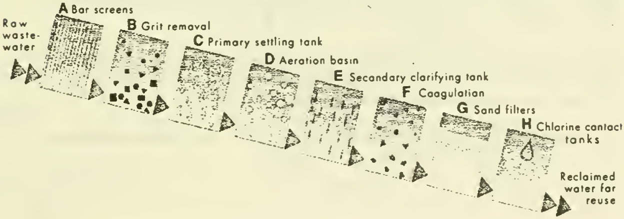
Local supply with reclaimed water 2010

- A reliable water supply is critical to the region's long-term economic health and its ability to attract and retain businesses.

- The program will benefit California and the rest of the nation by reducing the San Diego region's demand for water from the environmentally sensitive Sacramento-San Joaquin River Delta, the largest, most productive estuary on the West Coast.

- Six local agencies are acting cooperatively in this regional effort: the cities of San Diego, Escondido and Poway; the Otay Water District; the Padre Dam Municipal Water District; and the San Diego County Water Authority.

Water Reclamation Process



The program consists of a system of interconnected reclamation facilities designed to use local water resources in the most cost-efficient manner possible.

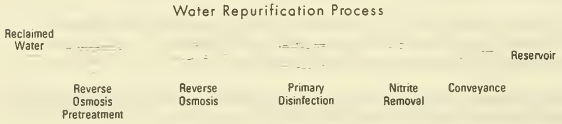
The program will cost an estimated $646 million (1995 dollars). The participating agencies will spend approximately $116 million through federal fiscal year 1996 to plan, design and construct reclamation facilities in the program.

Water produced will range in cost from $900 to $1,200 per acre-foot, comparable to the expense of new imported supplies.

The program is an effective federal/local partnership that promotes the efficient use of water resources and protects long-term economic health. Existing legislation authorizes the Bureau of Reclamation to fund up to 25% of the program's cost.

[illegible]

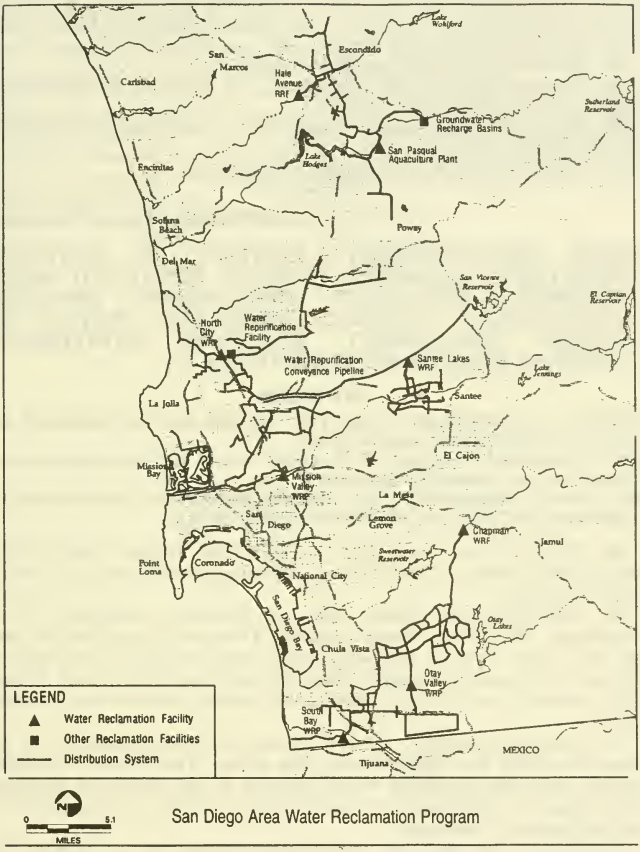
Included in the program is an innovative proposal to treat reclaimed water to a level suitable for blending with existing drinking water supplies.



The water repurification proposal is currently under study by the City of San Diego and the San Diego County Water Authority. The project could produce up to 6.5 billion gallons of potable water annually at a cost comparable to other new water sources. Such a supply would meet almost 10 percent of the City's current annual water needs.

The State Department of Health Services, an independent panel of public health experts and a citizens' committee have reviewed the project. All encouraged the Water Authority and the City to continue planning and environmental review of the project.

The water repurification project, if implemented, could be operational by the year 2000.



San Diego Area Water Reclamation Program

Mr. BARNES. Next we have David Schlesinger, who is a Director of the Metropolitan Water District representing the City of San Diego. Oh, excuse me, let's see.

Ms. TENNIS. This is Robert Goldsworthy.

Mr. BARNES. Pardon me, the one I just referred to submitted a statement. I wasn't aware of that.

Mr. RIGGS. Mr. Schlesinger submitted a statement on behalf of the City of San Diego?

Mr. BARNES. Yes, that is my understanding.

WEDNESDAY, MARCH 29, 1995.

WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA ALAMITOS BARRIER RECYCLED WATER PROJECT; WELLHEAD TREATMENT PROGRAM; MONTEBELLO FOREBAY RECYCLED WATER ADVANCED TREATMENT PROGRAM; MONTEBELLO FOREBAY HEALTH EFFECTS STUDY

WITNESSES

ROBERT GOLDSWORTHY, DIRECTOR, WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

FRED CARDENAS, GENERAL MANAGER, WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

KEN CARPI, WASHINGTON, D.C., REPRESENTATIVE, WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

Mr. BARNES. And then next we have Mr. Robert Goldsworthy, who is the Director of the Water Replenishment District of Southern California.

Mr. GOLDSWORTHY. Thank you, Mr. Chairman, members of the committee. The Water Replenishment District is new in this process and I just want to say we admire your stamina. You have my written statement on the Alamitos Barrier Recycled Water Project. This project is not in the President's budget, but we are working on it.

The Alamitos seawater barrier is one of three injection well systems for which the district provides water. This water is injected directly into the drinking water aquifer along the coast and does two things; it replenishes our groundwater basins and prevents further intrusion of seawater.

The district is a regional groundwater management agency. The district is huge and groundwater is extremely vital. Our basins underlie about 420 square miles, which is roughly the southern half of L.A. County. And we serve 3-and-a-half million people and 43 cities. About 40 percent of the drinking water in that area is groundwater. Even though the basins are adjudicated, natural percolation just isn't enough to keep up with the 200,000 acre feet a year demand that we have. And so we currently purchase about 75,000 acre-feet a year of water from the Colorado River in northern California to make that balance work.

During the last drought in California, our board became very concerned that the reliability of that imported supply was not acceptable. And we embarked on a program to substantially reduce our dependence on that water and even eliminate it, if possible.

The project before you, the Los Alamitos Barrier Project, represents a unique opportunity we think at a mere $23 million to start that construction program. Initially, we will recover 5,000 acre feet a year, ultimately 10,000 acre feet that is now going to the ocean, purify it, and inject it into these Alamitos barrier wells.

The cost to amortize over the life of the project is about $5 to $600 an acre foot, which is somewhat more than we are paying for imported water, but we think well worth it in terms of the reliability. We are under way with final designs. Our district would appreciate your support. We certainly appreciate the support of the commission in this effort.

[The statement of Mr. Goldsworthy follows:]

STATEMENT OF ROBERT GOLDSWORTHY
DIRECTOR

WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

before the

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

March 29, 1995

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

RE: Federal Financial Assistance Request

Introduction

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to testify today on the U.S. Bureau of Reclamation Appropriations for fiscal year 1996. I am Robert Goldsworthy, a Board member of the Water Replenishment District of Southern California (WRD). Accompanying me is Fred Cardenas, the General Manager. I will briefly tell you about our District and its mission, elaborate a little about the project scope and indicate how your support of funding will help ensure a reliable supply of water at reasonable cost for the people in the southeast area of Los Angeles County.

District Background

The Water Replenishment District of Southern California (WRD), governed by an elected five-member Board of Directors, was formed in 1959 to manage the Central and West Coast Groundwater Basins located in southern Los Angeles County. The District's service area encompasses 420 square miles with 3.5 million people in 43 cities. WRD's primary objectives are to replenish the groundwater basins, halt sea water intrusion, and provide quality groundwater for area residents. Groundwater is an important source of water in southern Los Angeles County, comprising approximately 40% of total water needs in our District and, in some of our cities, 100%. Groundwater reserves also provide an emergency supply of water if imported supplies are lost during earthquakes or if drought or other natural disasters reduce the supply of imported water. It is essential that this valuable resource be protected.

Replenishing Groundwater Basins with Recycled Water

The Water Replenishment District now purchases 75,000 acre-feet per year of expensive imported water from the Colorado River and Northern California to artificially replenish the groundwater basins. Natural replenishment from percolation of storm water simply isn't enough. Further, years of overpumping before the District was formed emptied the basins and that lost inventory must be replaced. The low water levels also allowed sea water to enter the edges of the basins, contaminating and forcing the shutdown of numerous wells. About 35,000 acre-feet per year of the District's expensive imported water purchases are used for injection into wells drilled along the coast. This water serves two purposes: it halts further intrusion of seawater and also replenishes the basins.

Notwithstanding this years abundance of water in California, Southern California's gradual loss of entitlements to both Colorado River and Northern California water and recent drought history have convinced us that a more reliable supply of water for these seawater barrier wells must be developed to protect our critical groundwater resource.

The District's goal is to totally eliminate the use of imported water and replace it completely with recycled water and local stormwater runoff. The District has an aggressive program to increase the use of recycled water.

Alamitos Barrier Recycled Water Project

Working together with the Orange County Water District and the City of Long Beach, the District is proceeding with plans to build a 5,000 acre-feet per year reclamation plant to replace, initially, 50% of the imported water now being injected into the Alamitos Seawater Barrier, one of three widespread barrier systems for which the District provides water. The second stage will expand the treatment plant to provide 100% substitution of imported water. Orange County is involved because this particular barrier system extends into Orange County and the City of Long Beach has title to the recycled water to be fed to the new plant. The proposed plant is consistent with the Metropolitan Water District's new Integrated Resources Plan, which anticipates 700,000 acre-feet per year of additional water reclamation by the year 2010.

Design work for the project is underway and a bid package will be issued in June for final designs and construction, which is targeted to start late 1995. We anticipate plant startup in mid 1998.

Feedwater for the project will be recycled water that would otherwise be discharged into the San Gabriel River. Advanced treatment equipment, including microfiltration and reverse osmosis, will be put in place to purify the water and meet the stringent requirements of the State Department of Health Services and the Regional Water Quality Control Board.

The capital cost is currently pegged at $23 million. Even though one-half of this will be paid by the Orange County Water District, this project is an ambitious undertaking and the first major construction project for our small district. The District's replenishment assessment, which is passed through to the ratepayers, will have to be increased on the order of 9% over the next three years to provide for the construction. This is on top of increases to cover the escalating cost of imported water for replenishment.

DCREQ.SAM

Amortizing the construction cost, adding operation and maintenance costs and backing out anticipated reimbursements from the Metropolitan Water District's Local Projects Program, the cost of water produced from the plant will be around $515 per acre-foot, which is more than the current cost for imported water, although well within the range of costs typically experienced.

We therefore need federal funds to ease the burden on our local ratepayers and we sincerely thank the California Water Commission for recommending this project for your consideration. A total of $5,750,000 is requested through fiscal year 1998, $1,775,000 of that in fiscal year 1996, which will cover 25% of the project's construction cost. Federal assistance will enhance project economics and ensure the viability of our precious groundwater basins into the next century.

We would be pleased to answer any questions you might have.

Mr. RIGGS. Very good. Are you involved in any reclamation efforts or wastewater reclamation efforts?

Mr. GOLDSWORTHY. This is our first project to do. We already I think are the largest regulated user of reclaimed water in the State of California. We currently spread on the ground about 50,000 acre feet a year, up in one of the areas of our basin where you can do that. But this is our first construction project.

Mr. RIGGS. I see. Thank you.

Mr. BARNES. Okay.

WEDNESDAY, MARCH 29, 1995.

BRACKISH WATER RECLAMATION DEMONSTRATION FACILITY

WITNESS

GAIL L. PRINGLE, DIRECTOR, PORT HUENEME WATER AGENCY

Mr. BARNES. Mr. Chairman, I will ask if someone is here from the Port Hueneme Water Agency. I think this is Gayle Pringle, who is the director of the agency.

Ms. PRINGLE. Right.

Mr. RIGGS. You are Ms. Pringle?

Ms. PRINGLE. I am. I guess they saved the best for last.

I am representing the Port Hueneme Water Agency. I am here today with the executive director of the agency. And we are seeking your support for our request for $2 million in cooperative funding from the Bureau of Reclamation for a Brackish Water Reclamation Demonstration Facility.

The Port Hueneme Water Agency was formed in about 1994. It is a partnership between my district, the Channel Islands Beach Community Services District, and the City of Port Hueneme, and two Navy bases that are located in our area, the Naval Construction Battalion Center at Port Hueneme and the Naval Air Weapons Station at Point Mugu.

The purpose of forming the agency was to advance a water quality improvement project in our area. And we need to do two things, really. We need to increase the reliability of the system we currently have, and improve the quality.

The way we are planning to increase the reliability is by imparting State water, which has an additional benefit of reducing our reliance on groundwater. The basin is overdrafted, but managed. And there is seawater intrusion along the coast. So we will cease our pumping along the coast with this project.

And the way we are planning to improve the quality is by building this facility; which will actually have three technologies, reverse osmosis, nanofiltration and electrodialysis side-by-side. The facility will produce about 4 million gallons of drinking water every day. Each of the three treatment processes will treat an equal part. And it will serve about 45,000 Federal and local customers in the area.

I am really excited about this project. I have been working on it a long time with a lot of other people. And I hope that you will be a partner with us in this project.

Mr. RIGGS. Thank you, Ms. Pringle.

Is this facility in the President's proposed budget?

Ms. PRINGLE. No, sir, it is not.

Mr. RIGGS. Very good.

[The statement of Ms. Pringle follows:]

TESTIMONY TO THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES
THE HONORABLE JOHN MYERS, CHAIRMAN

March 29, 1995

By

GAIL L. PRINGLE, Member, Board of Directors, Port Hueneme Water Agency, and President, Board of Directors, Channel Islands Beach Community Services District

Port Hueneme Water Agency
J.R. Velthoen, Executive Director
250 North Ventura Road
Port Hueneme, CA 93041
(805) 986-6505
(805) 986-6511 FAX

In support of $2,000,000 for the Port Hueneme Water Agency for a Brackish Water Reclamation Demonstration Facility under Section 1605, of Public Law 102-575

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
THE HONORABLE JOHN MYERS, CHAIRMAN

Chairman Myers and members of the Subcommittee, my name is Gail Pringle, President of the Board of Directors of the Channel Islands Beach Community Services District, and Member of the Board of Directors of the Port Hueneme Water Agency. The Port Hueneme Water Agency ("Agency") was formed by the City of Port Hueneme and the Channel Islands Beach Community Services District in July of 1994 as a Joint Powers Agency governed under the laws of the State of California. I am here today, together with Port Hueneme City Councilmember, Orvene Carpenter, President, Board of Directors, Port Hueneme Water Agency, to seek the Subcommittee's support for our request to receive $2 Million in cooperative funding from the United States Bureau of Reclamation for a Brackish Water Reclamation Demonstration Facility ("Facility") during Federal Fiscal Year 1995-96.

PROJECT SUMMARY

The Agency's proposed Sub-Regional Water Quality Improvement Project is designed to improve the **quality** and increase the **reliability** of municipal and industrial drinking water supplies for four public water purveyors in southwest Ventura County, California. Those four public water purveyors are: the City of Port Hueneme, the Channel Islands Beach Community Services District, Naval Construction Battalion Center - Port Hueneme, and the Naval Air Weapons Station - Pt. Mugu. The cornerstone of the project is a Brackish Water Reclamation Demonstration Research Facility, which will serve as a state-of-the-art sub-regional water treatment plant.

The Facility will provide 3.9 million gallons per day (mgd) of water treated to the quality of imported State water. The 3 desalination technologies considered most applicable to reclaim the local sources of brackish groundwater are reverse osmosis, nanofiltration, and electrodialysis reversal. The Facility would be constructed to provide 1.3 mgd of treatment capacity in a side by side, full-scale, operational demonstration of each technology. By applying these different technologies to the same water source, long-term operating and economic data will be collected and compared.

The Facility will assist other communities to select and understand the most appropriate technology for their specific application. The facility could become a location to provide research opportunities and waste treatment operator training. Accordingly, the availability of this demonstration research facility in California should make it easier for other communities to successfully implement brackish water desalination and groundwater reclamation, as a major element in the strategy of local compliance with the increasingly stringent regulatory standards found in the Safe Drinking Water Act Amendments. Also, in resolving problems with the contamination of local groundwater supplies, and increasing water supplies to drought sensitive areas.

BACKGROUND

Currently, the four agencies listed above utilize brackish groundwater from the Oxnard Plain Groundwater Basin, which is listed in California Department of Water Resources Bulletin 118 as a critically overdrafted basin and is under active basin management by the Fox Canyon Groundwater Management Agency. The groundwater used by these agencies is extracted locally, from deep aquifer wells increasingly subject to seawater intrusion from along the coast, or delivered from upper aquifer wells located inland by the United Water Conservation District. Both groundwater sources are deemed brackish, in that they have a total dissolved solids (TDS) content of greater than 1000 mg/l and a hardness in excess of 500 mg/l. By comparison, water quality in the Washington, D.C. urban area averages 217 mg/l, TDS and 126 mg/l in Hardness.

The Agency was formed to secure a safe, reliable, high quality, environmentally sound and economical water supply for the City of Port Hueneme, the Channel Islands Beach Community Services District, Naval Construction Battalion Center - Port Hueneme, and the Naval Air Weapons Station - Pt. Mugu. Prior to the formation of the Agency, increasing overdraft of the local groundwater basin, seawater intrusion, poor water quality and aging infrastructure had prompted each of the aforementioned participants to independently pursue water supply and quality improvement projects.

PROJECT DESCRIPTION

The Agency, in order to provide high quality water, is implementing a Water Quality Improvement Program which involves discontinuation of groundwater extractions from deep aquifer wells located along the coast, desalination of local groundwater sources, and blending of desalinated groundwater with a limited amount of imported State Water Project water for peaking purposes through the Calleguas Municipal Water District, a member agency of the Metropolitan Water District of Southern California. As a result of the conjunctive use of these surface water sources, and desalinated groundwater, the total groundwater extractions in the overdrafted Oxnard Plain groundwater basin will be reduced, helping to bring the basin into safe-yield, and reducing the threat of seawater intrusion along the coast.

The Agency's project involves the construction of a 3.9 mgd regional water treatment plant, the Facility, and various transmission pipelines to deliver both local groundwater and State Project Water. The primary source of local groundwater for the

Facility will be the United Water Conservation District. This local groundwater is **highly mineralized and contains trihalomethane precursors.** To treat this water, a combination of **three** desalination technologies will be used. State Water Project water will be blended with desalinated local groundwater through existing and proposed transmission pipelines. To optimize the utilization of the water treatment facilities, the proposed plant's capacity is based on current minimum diurnal water demands of the project participants. Peak day and fire flow demands will be met by State Water Project water deliveries.

The estimated capital cost of the Program is $14.1 Million (in 1996 dollars). Of this amount, the capital cost of the Demonstration Research Facility is estimated to be $9.0 Million (in 1996 dollars). The Agency is requesting $2 Million in cooperative funding from the Bureau of Reclamation for Federal Fiscal Year 1995-96 pursuant to the authorization found in Section 1605 of the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI) of Public Law 102-575. This section authorizes the Bureau to provide cooperative funding to local water agencies up to 50 percent of the total cost of the facility. The construction and operation of the Facility will provide an opportunity for the Federal government to enter into a unique partnership with local water agencies to obtain hard research data from the operation of a full-scale, groundwater desalination treatment facility in Ventura County, California. To the best of our knowledge, there are no such Research Facilities, operating at full-scale in the United States, using three desalination technologies simultaneously.

The nearly **45,000 Federal and local customers** of the Agency are expected to derive significant benefits from the project including improved water quality, an increase in economic development and job creation resulting from the construction of a long-term, safe and reliable high quality water system, which is environmentally sustainable, and meets current and proposed water quality drinking standards under the Safe Drinking Water Act Amendments.

The delivery of imported State Water Project Water will also allow the reduction of groundwater from coastal wells threatened by seawater intrusion. Relocating groundwater extractions from the coastal to inland groundwater basin recharge areas operated by the United Water Conservation District will assist the basin in achieving safe-yield in the 2010.

Benefits accruing to the Port Hueneme Water Agency's customers which result from the implementation of the Water Quality Improvement Program, including the Facility, include the following:

1. elimination or reduction in the need for expensive and highly inefficient home water softening units, thereby reducing the need to desalinate wastewater effluent proposed for reclamation in the future.

2. reduction in the cost of soap and cleaning products for those water customers who do not provide home water softening.

3. reduction in the costs of repairs and replacement of plumbing, plumbing fixtures and water using appliances.

4. reduction in the cost of purchasing bottled water and/or household reverse osmosis units.

5. avoidance of potential penalties associated with the staged reductions in groundwater pumping allocations imposed by the Fox Canyon Groundwater Management Agency.

6. avoidance of additional Water Treatment Costs imposed by Federal and State Regulatory Agencies.

Thank you very much for the opportunity to address the Subcommittee.

Mr. BARNES. Mr. Chairman, Mr. Fazio, we apologize for running seven minutes over. We did our very best. And we are deeply appreciative of the committee's allocating this time for us this year, as you have in the past. We very much appreciate it. We thank you very much for your.

Mr. RIGGS. Mr. Barnes, you and Ms. Tennis did an outstanding job. Again, we want to thank you for the invitation to join you at last night's reception. It was a very cordial and enjoyable event, and we appreciate your testimony today. It will be very helpful in guiding us in making appropriations decisions in the coming months.

Mr. BARNES. We look forward to working with you folks and with our constituent members as we go through the process. Thank you very, very much.

Mr. RIGGS. Very good.

Mr. FAZIO. Thank you, Mr. Chairman.

I just wanted to say, Stan, you all know how tough it is going to be this year. We are going to be voting to reduce discretionary spending probably by $100 billion over the next five years. I don't—I hesitate to ask you, how much add-on did we request here?

Mr. BARNES. I hesitate to answer you, Mr. Fazio. We have in the neighborhood of $32 million, I think. The great majority of that money is due to these changed administration policies. Not only the Corps, the Corps was devastating, but the Bureau has restructured the things that it wants it go forward with also. So it has been a real tough year for us.

Mr. FAZIO. Well, I am not, as we have heard, happy with the approach that has been taken about the Corps project. But I don't think we can dilute ourselves into thinking that some cuts are going to be made. And I can only say that we will do as we always do, and with Mr. Riggs now on the committee, I hope we can do even better with Bob Schmidt's help. But it is going to be tough, and I hope everybody leaves Washington with that reality. It is a sobering one.

Mr. BARNES. We recognize that. I would like, if I could, just echo one thought that was expressed earlier. We feel quite strongly that the proper way to go through all of this restructuring is through the authorization process, not through the budget process. And we would welcome the opportunity to work with the administration and with the Congress in trying to craft some reasonable guidelines under which we can go forward with these badly needed projects. There is no question about the need. The only question is how do you fund them.

Mr. FAZIO. Well, I agree. It is always good to have the authorizing committee speak, but we are going to be presented with a budget resolution which we will have to divide among the subcommittees, which will be far below what we had anticipated. And so that is going to get translated through to every project. You need to understand that.

Mr. BARNES. Yes, Vic. The point I guess I am trying to make is that beyond the fiscal year 1996 appropriation, beyond the fiscal year 1996 appropriation, we really should develop, work with everybody in developing some orderly criteria where we raise the comfort level by all participants.

Mr. FAZIO. We need to give some certainty to people out there. We understand that. Thank you, Mr. Chairman.

Mr. BARNES. Thank you very much.

Mr. RIGGS. Thank you for your very important comments, Mr. Fazio. And again, thank you very much, Mr. Barnes. I hope we can put things in a proper perspective, though.

At last night's reception, I asked General Bruce Scott, who as many of us know is the youngest general in the Army, and the Commander of the Army Corps of Engineers, South Pacific Division, how much he estimated was averted in damages from this winter's floods. And he gave me an estimate of a $440 million savings from the January—$440 million savings in January from the floods during that month, and $1.21 billion in savings during March, the March flooding, which was more severe because it affected a much larger geographical area in California.

Furthermore, he tells me that nationwide, the historical average for damages averted versus the actual cost of constructing Corps flood control projects is in the ratio of about 8 to 1. So I hope that will help us keep things in the proper perspective as we go forward with the budget process, which, as Mr. Fazio correctly points out, is going to be a very difficult and even occasionally painful process.

Mr. BARNES. Thank you very, very much.

Mr. RIGGS. Thank you again.

WEDNESDAY, MARCH 29, 1995.

CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE

WITNESSES

THOMAS SCHEELER, ASSISTANT DIRECTOR OF ENGINEERING, PORT OF SACRAMENTO

JOHN McTAGGART, MEMBER, CITY COUNCIL, CITY OF RANCHO PALOS VERDES

LEE BYRD, MAYOR, CITY OF RANCHO PALOS VERDES

DICK LYON, MAYOR, CITY OF OCEANSIDE, ON BEHALF OF THE SAN DIEGO ASSOCIATION OF GOVERNMENTS

COLLEEN O'HARRA, CITY OF OCEANSIDE

CATHY NOVAK, COUNCIL MEMBER, CITY OF MORRO BAY

ROSEMARY CORBIN, MAYOR, CITY OF RICHMOND

MICHAEL R. POWERS, PORT DIRECTOR, PORT OF RICHMOND

DENNIS G. HUNTER, HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION DISTRICT

ROY L. CURLESS, HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION DISTRICT

DON SHERER, COMMISSIONER, SAN MATEO HARBOR DISTRICT, MEMBER, BOARD OF DIRECTORS, SAN MATEO HARBOR COMMISSION

JIM STILLWELL, PRESIDENT, SAN MATEO HARBOR COMMISSION

ELLEN JOHNCK, EXECUTIVE DIRECTOR, BAY PLANNING COALITION

LARRY STEFFEN, MOSS LANDING HARBOR

ALEXANDER KRYGSMAN, PORT DIRECTOR, PORT OF STOCKTON

BILL LEE, CHAIRMAN, PORT COMMISSION, SANTA CRUZ PORT DISTRICT

BRIAN E. FOSS, PORT DIRECTOR, ON BEHALF OF THE SANTA CRUZ PORT DISTRICT COMMISSION

BILL GEISRIDER, SANTA CRUZ COMMISSION

RICHARD W. PARSONS, GENERAL MANAGER, VENTURA PORT DISTRICT

PETER K. WILSON, ASSISTANT CITY ADMINISTRATOR/WATERFRONT DIRECTOR, ON BEHALF OF THE CITY COUNCIL OF THE CITY OF SANTA BARBARA

ROBERTA GOULART, EXECUTIVE OFFICER, COUNTY WATER AGENCY, CONTRA COSTA COUNTY BOARD OF SUPERVISORS

GREG WOODELL, COUNTY OF LOS ANGELES, DEPARTMENT OF BEACHES AND HARBORS

E.D. ALLEN, CHIEF HARBOR ENGINEER FOR THE PORT OF LONG BEACH ON BEHALF OF THE LONG BEACH BOARD OF HARBOR COMMISSIONERS

VERNON E. HALL, CHIEF HARBOR ENGINEER, CITY OF LOS ANGELES HARBOR DEPARTMENT

JOHN WOLTER, DEPARTMENT OF PUBLIC WORKS, CITY OF NEWPORT BEACH

PATRICK RYAN, PORT OF OAKLAND

Mr. RIGGS. I will call forward at this point the last panel of the morning, now afternoon, and that is the California Marine Affairs and Navigation Conference. We have allotted a half hour of time to be controlled by Mr. Scheeler, as the chairman.

Mr. SCHEELER. Yes. We will try to move as expeditiously as we possibly can.

Good morning, Mr. Chairman, Mr. Fazio, members of the committee. I am Thomas Scheeler, Assistant Director of Engineering for the Port of Sacramento and Chairman of C–MANC for this year. I would also like to introduce our Executive Director, Jerry Pope. There he is. And my wife, Sheila.

This is the thirty-sixth year for C–MANC coming to Washington, representing large and small ports, harbors and water-related cities and counties of California. These facilities are vital to California, national, and international business, and they are of national significance due to their contribution to trade, job development, and marine safety.

We thank you for the support you have given these projects in the past, and we request your continued support.

I would like to continue our testimony by introducing Mayor Lee Byrd, City of Rancho Palos Verdes.

Mr. BYRD. Thank you, Mr. Chairman, and distinguished members of this committee. Your support, continued support of the Rancho Palos Verdes shoreline protection feasibility study is of vital importance to the City of Rancho Palos Verdes. This erosion of the California coastline has degraded at least 2,000 acres of intertidal and subtidal habitats. And in addition, it threatens to undermine the tow of our landslide, but it also prevents us from revegetating 300 acres of available bluff land that has been dedicated to our favorite friend, the gnatcatcher.

The city and the Corps have undertaken a jointly funded feasibility study. It is under way now. We are currently investigating the geology of the tow, and we respectfully ask that $200,000 of matching funds be included in the 1996 appropriations bill.

The City of Rancho Palos Verdes has already authorized our expenditure for that funding. We are encouraged also by preliminary discussions that after completion of the feasibility study, the shoreline project and resulting restoration of marine habitat would be designated for offshore mitigation credit for both the Port of Los Angeles and the Port of Long Beach. That would mean that we could do the constructions without the use of Federal funds.

We support those other projects. You will be hearing from our contemporaries here today. And we also—we greatly appreciate the support of Congresswoman Jane Harman that she gave you earlier this morning I believe at 9:30.

Thank you very much.

Mr. RIGGS. Thank you, Mr. Mayor.

Mr. SCHEELER. Next, Mr. John McTaggart, Councilman, City of Rancho Palos Verdes, and President of the South Basin Council of Governments.

Mr. MCTAGGART. Our Council of Governments represents 17 governmental entities in the south bay of Los Angeles County. We strongly support the economic health of the ports. As you know, our economic engine got derailed in aerospace. That was our primary employer. And we want to see the ports remain healthy. We think we have a mitigation project in the Rancho Palos Verdes study, and we ask for your continuing support on that.

Also, we have heard that the administration wants to change the mission of the Corps and we hope to persuade the Congress not to change the mission of the Corps at this point in time. At least without some heavy thought for grandfathering. And with that, I know the time is late and that concludes my remarks.

Mr. RIGGS. Thank you. I don't know if you were here earlier today, but suffice it to say the members of the subcommittee, at least those from California, are persuaded.

Mr. MCTAGGART. Thank you very much.

[The statement of Mr. McTaggart follows:]

BEFORE

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
HON. JOHN T. MYERS, CHAIRMAN

TESTIMONY ON

FY 1996 APPROPRIATIONS
RANCHO PALOS VERDES SHORE PROTECTION, CALIFORNIA
MARCH 29, 1995 IN WASHINGTON, D.C.

PRESENTED BY

CITY OF RANCHO PALOS VERDES, CALIFORNIA
HON. LEE BYRD, MAYOR
AND
HON. JOHN McTAGGART, MEMBER CITY COUNCIL

March 29, 1995

Mr. Chairman and Members of This Distinguished Subcommittee:

Your continued support of the Rancho Palos Verdes shoreline protection feasibility study is of vital importance. The erosion of the California coastline in the City of Rancho Palos Verdes has degraded at least 2,000 acres of valuable intertidal and subtidal habitat and in addition, threatens to undermine an uplands landslide in the non-federal jurisdiction, the majority of which has already been stabilized with non-federal funds.

The City and the Corp have undertaken a jointly funded feasibility study and we respectfully ask that $200,000 of matching funds be included in FY 1996 appropriations to continue that study. The City of Rancho Palos Verdes has already committed to fund our share of the study.

We are encouraged by our preliminary discussions with representatives from the Department of the Interior and the Fish and Wildlife Service that following completion of the feasibility study, the Shoreline Project and resulting restoration of the marine habitat would be designated for off-site mitigation credit for the very important Los Angeles and Long Beach Port development programs. We anticipate that the construction would be accomplished without the use of federal funds.

I also stand in support of the many Port, Harbor and Marina projects in California that my colleagues have brought before you this morning. And, I greatly appreciate the support that Congresswoman Jane Harman has made known to you regarding the Rancho Palos Verdes erosion control project.

Mr. SCHEELER. Mayor Dick Lyon, City of Oceanside, on behalf of San Diego Association of Governments.

Mr. LYON. Good morning. Good afternoon, Mr. Chairman, Mr. Fazio. I am very pleased to be here representing SanDAG, San Diego Association of Governments. And I am going to talk to you about a project. You are wondering why I am going to talk to you about it. That is the Nuclear Powered Aircraft Carrier Homeporting project in San Diego Harbor. And I will come around to a nexus in just about 30 seconds.

Roughly 10 million cubic yards of sand will be generated as a result of the dredging project inside the harbor. And what SanDAG, in the benefit of the beaches, some eight cities and other agencies have all the way along that coastline, stand to benefit tremendously as a result of having that sand deposited in the right way, in a timely fashion, on the beaches.

My written statement, which you have, tells—gives you nine good, solid reasons for doing the project that way. What I would like to do is just read the one paragraph, a short one, which follows the numbered rationale for doing it.

The Corps of Engineers needs to collaborate in evaluating the use of the Homeporting Project dredge material as beach replenishment. The Navy and the Corps will determine the most appropriate placement of beach-suitable dredge material. It is essential that this collaborative evaluation in no way adversely effects the schedule for carrying out the Homeporting Project, which is of critical importance to the Navy and the Department of Defense. And so I am not looking for any money, I just want the Corps to do their job with the Navy in collaborating, saying when to do it, how to do it, and expeditiously. Thank you very much.

Mr. RIGGS. Thank you, Mr. Mayor.

[The statement of Mr. Lyon follows:]

San Diego
ASSOCIATION OF
GOVERNMENTS

Suite 800 First Interstate Plaza
401 B Street
San Diego California 92101
(619) 595-5300 Fax (619) 595-5305

STATEMENT
to the United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
March 29, 1995

on behalf of
the San Diego Association of Governments
by the Honorable Dick Lyon, Mayor
Oceanside, California

requesting an appropriation to supplement
the U.S. Navy Carrier Homeporting Project

Honorable Chairman Meyers and Subcommittee Members:

I respectfully request that the Subcommittee add $20 million to supplement the FY 96 military construction budget for the U.S. Navy Carrier Homeporting Project in San Diego Harbor. These funds should come from a source that will not reduce the authorized budget for the Homeporting Project or other Navy construction activities. These funds are needed to dispose of suitable material dredged from the harbor at the San Diego region's critically eroding beaches. The existing carrier turning basin and the harbor entrance channel are being dredged to accommodate the deeper draft of the nuclear aircraft carrier scheduled to be homeported in the harbor starting in 1998.

There are several compelling reasons why this appropriation is needed:

1. The Navy's open ocean disposal options are limited. Placement of the nine million cubic yards of suitable material expected to be dredged as part of the Homeporting Project at the region's eroded beaches is the least expensive disposal option.

2. Placement of sand dredged from the Homeporting Project on the region's eroded beaches will mitigate beach erosion impacts caused by the construction of Camp Pendelton Harbor as a wartime measure. These impacts have been recognized in past studies by the U.S. Army Corps of Engineers as published in House Document 456, 86th Congress 2nd Session and other related reports. These reports conclude that restoration of downcoast beaches should be a federal responsibility.

3. The erosion of beaches in the San Diego region has exposed public and private property and infrastructure to damages from coastal storms that could total hundreds of millions of dollars. Erosion has also resulted in the loss of recreational beaches for millions of residents and visitors from around the nation and the world.

MEMBER AGENCIES: Cities of Carlsbad Chula Vista, Coronado, Del Mar El Cajon, Encinitas Escondido, Imperial Beach La Mesa Le
National City, Oceanside Poway, San Diego San Marcos Santee Solana Beach, Vista and County of San Diego
ADVISORY/LIAISON MEMBERS California Department of Transportation, U S. Department of Defense, S D Unified Port District and Tijuana/Baja California

4. The current budget for the Homeporting Project is not sufficient to fund the placement of dredged material on the north San Diego coastal beaches where federal restoration responsibility has been recognized.

5. The Congress is working with many of the communities in the San Diego region on projects to reduce storm damage potential and related expenses. The use of the dredged material from the Homeporting Project to restore eroded beaches could reduce the cost of these shore protection projects by almost $30 million.

6. $20 million of potential federal interest in beach replenishment projects in the San Diego region have been identified by the San Diego Association of Governments based on data from the U.S. Army Corps of Engineers and the U.S. Navy. This amount is roughly equivalent to what we anticipate will be the construction requirement of the first five year phase of an ongoing beach restoration project currently being studied by the Corps, and which is a 100% federal project.

7. The dredged material used to restore eroded beaches will result in substantial storm damage protection and recreation benefits to the communities in the San Diego region. Thousands of commercial and residential properties, hundreds of acres of public lands, and millions of dollars worth of public infrastructure will be protected.

8. The additional cost in excess of the current Homeporting Project budget for placement of dredged material at the region's eroded beaches is conservatively estimated at $20 million.

9. The Homeporting Project presents a once in a generation opportunity to restore these beaches which are an invaluable environmental, recreational and economic resource for the nation.

The Subcommittee should direct the Navy and the Corps of Engineers to collaborate in evaluating the use of the Homeporting Project dredged material as beach replenishment. The Navy and the Corps will determine the most appropriate placement of beach suitable dredge material. It is essential that this collaborative evaluation in no way adversely affects the schedule for carrying out the Homeporting Project.

I have attached three pages to this testimony which present basic facts about this request, reasons why this request makes sense from a cost efficiency, environmental, recreational and economic standpoint, and a listing of the strong and widespread support that the proposal has received throughout the San Diego region.

The San Diego region looks to your leadership to help the nation capitalize on this unprecedented opportunity to invest in its future environmental quality and economic vitality.

Respectfully submitted,

DICK LYON
Mayor

Attachment

3/23/95

SAN DIEGO REGION
FUNDING FOR REGIONWIDE BEACH REPLENISHMENT

BASIC FACTS

- The U.S. Navy's Aircraft Carrier Homeporting Project in San Diego Harbor includes dredging about 9 million cubic yards of beach quality sand, starting in 1996. The project is required to deepen the carrier turning basin and harbor entrance channel. Congress is scheduled to act on this proposal in 1995.

- The Navy is supportive of placing the dredged sand on the region's critically eroded beaches at sites benefiting each of the region's eight coastal cities, as well as the Navy, and State Parks and Port District managed lands. The sites were developed by the above groups, working cooperatively at SANDAG's Shoreline Erosion Committee.

- **The Navy may be able to cover some of the costs of transporting the sand to the region's critically eroded beaches. The additional costs of depositing sand at the region's beaches is expected to be $20 million. This is about one half the cost of typical beach replenishment projects.**

- **The San Diego region is seeking federal and state funding help to pay the additional costs. All potential sources and agencies are being surveyed. The most likely source is an appropriation from outside the Department of Defense to supplement the project budget.**

- The San Diego region has over 30 miles of critically eroded beaches, which constitute almost 3/4ths of the beaches between Oceanside Harbor and the International Border.

- This project could provide a major portion of the sand needed to restore the region's beaches and to provide additional recreational opportunities and property protection.

- The region's beaches are a priceless economic (tourism), recreational and environmental resource recognized in the Shoreline Preservation Strategy adopted by SANDAG in July 1993.

- **This project presents a once-in-a-generation opportunity to improve the region's beaches at an unprecedented low cost.**

3/10/95

SAN DIEGO REGION
FUNDING FOR REGIONWIDE BEACH REPLENISHMENT

FEDERAL FUNDING SUPPORT MAKES GOOD SENSE

Efficiency. Combining the objectives of homeporting fleet consolidation with regionwide beach replenishment in one project saves money compared to doing them separately.

Cost Savings. Carrying out beach replenishment as part of the Homeporting project will cost much less than a typical large scale replenishment project. As much as $50 million could be saved.

Economic benefits to the Nation, State and Region. Beach related tourism is a growing basic industry in California's struggling economy. The U.S. has a large balance of trade surplus in tourism. Preserving the state's beaches is important to the continued prosperity of this segment of the economy.

Environment. Beaches are a valuable habitat that support many important species, including grunion, many types of clams and invertebrates, and many shore birds, including the endangered Least Tern and Snowy Plover.

Mitigation of the negative impacts of federal projects. Beach replenishment can help mitigate the Camp Pendleton boat basin jetty. The jetty and related projects have had a significant negative impact on the natural flow of sand to the San Diego region's beaches.

Local and regional support from the public and private sectors is widespread and strong. (see following page)

Local and Regional Commitment. The San Diego region has a long-term beach replenishment policy and commitment through the Shoreline Preservation Strategy adopted by SANDAG, and local policies incorporated in coastal cities' local coastal plans and ordinances. The sand from the Navy Homeporting project will be managed for optimum effect over time.

3/27/95

SAN DIEGO REGION
FUNDING FOR REGIONWIDE BEACH REPLENISHMENT

WIDESPREAD LOCAL AND REGIONAL SUPPORT

The following groups have endorsed an initiative to seek funds to support the beach replenishment component of the Navy's Carrier Homeporting project. This list indicates the widespread support, throughout the region and from all sectors of the community, for efforts to obtain funding. Support continues to grow as more groups consider and act on this issue.

San Diego Association of Governments
SANDAG's Shoreline Erosion Committee

City of San Diego
City of Oceanside
City of Carlsbad
City of Encinitas
City of Solana Beach
City of Del Mar
City of Chula Vista
City of Coronado
City of Imperial Beach
San Diego Unified Port District
San Diego Convention and Visitors Bureau
Greater San Diego Chamber of Commerce
Chula Vista Chamber of Commerce
Encinitas Chamber of Commerce
Escondido Chamber of Commerce
Fallbrook Chamber of Commerce
Imperial Beach Chamber of Commerce
Rancho Bernardo Chamber of Commerce
Condominium Organization of South Sierra Avenue (COOSSA)
County of San Diego
City of El Cajon
City of Escondido
City of La Mesa
City of Lemon Grove
City of National City
City of Poway
City of San Marcos
City of Santee
California Shore & Beach Preservation Assoc.
League of Women Voters
Save Everyone's Access
Southwest Wetlands Interpretive Association
Seacoast Preservation Association
Self Realization Fellowship
San Dieguito River Park Joint Power Authority
Surfrider Foundation
Kids for Saving the Earth
Greater Solana Beach Chamber of Commerce

Mr. SCHEELER. Deputy Mayor Colleen O'Harra, City of Oceanside.

Ms. O'HARRA. Good afternoon. I would like to thank you for your continuing support over the years for our Experimental Sand Bypass project, which has proved in the past to be very successful. We anticipate that the Federal Government will save in excess of $1 million in annual dredging costs for our harbor. The Corps is completing phase three of the project and the repair of a pipeline which blew out in our 1993 storm. We anticipate all of those repairs to be completed and the system fully operational by January of next year.

What we are asking for this year is an add-on, it is not in the President's budget, of $750,000 to operate the system for the remainder of the year; so that between the Corps and the City of Oceanside, we can determine the actual operating costs of that project. So that would be three-quarters of a year's worth of operating costs.

We would also encourage the subcommittee to direct the Corps to continue its negotiations to purchase the barge that the system sits on. It is now owned by the contractor that is building the system. And the Corps will need to purchase that barge in order for us to continue to operate the system.

Mr. RIGGS. Thank you.

[The statement of Ms. O'Harra follows:]

CITY OF OCEANSIDE

STATEMENT
to the United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
March 29, 1995

The Honorable John Myers, Chairman

Oceanside Sand Bypass System
Oceanside, California

Congress appropriated funds in the FY 1994 budget to construct Phase III of the Oceanside Sand Bypass System. That system has been designed to work in conjunction with a modified dredging program for Oceanside Harbor. The recommended design will capture sand between dredging cycles, in the summer months. Approximately 150,000 cubic yards of sand would be removed during these months, reducing federal maintenance dredging costs by approximately $1,128,750.

Congress appropriated funds in FY 1995 to repair the Sand Bypass System discharge pipeline, which was seriously damaged as a result of the winter storms of 1993. The Corps of Engineers is currently soliciting bids for the construction of the Phase III installation and pipeline modifications and anticipates completing that work in early 1996.

The City of Oceanside has requested that the Corps of Engineers operate the Sand Bypass System for a full year after the improvements are made. During that time, the City of Oceanside would expect the Corps of Engineers to provide the City with operational costs and data regarding the extent to which the bypass system reduces federally obligated maintenance dredging expenses. Based on that information, the City of Oceanside is willing to enter into discussions with the Corps of Engineers concerning assumption of the operation and maintenance of the system. The City would also request that your committee direct the Corps of Engineers to procure the platform on which the Sand Bypass System is mounted. That action will assure that the federal government's investment in the system is protected.

The City of Oceanside requests your support of $750,000 in the FY 96 budget to operate and maintain the Oceanside Sand Bypass System. During that period, final system operation can be fully tested and refined, and the Corps of Engineers and City of Oceanside can complete discussions regarding local assumption of system operation and maintenance.

The Oceanside Sand Bypass System has been a cost effective means for maintaining the Oceanside Harbor and providing beach protection and recreational benefits. We ask your support so that the newly completed improvements can be operated in FY 1996.

Respectfully submitted,

Dick Lyon
Mayor

STATEMENT
to the United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
March 29, 1995

The Honorable John Myers, Chairman

Oceanside Harbor Maintenance and Operation (modified dredging) Program
Oceanside, California

The Oceanside Harbor District requests your support of $1,045,000 in the FY 1996 budget for the Oceanside Harbor Maintenance and Operation (modified dredging) Program. This program will work in conjunction with the Sand Bypass System. The Maintenance and Operation Program, combined with the Sand Bypass System, is necessary for the safe navigation into Oceanside Harbor and the U.S. Marine Corps Base Camp Pendleton Harbor. The program will additionally provide beach sand restoration, shoreline protection and associated recreational benefits.

Thank you for your continued support of all our projects.

Respectfully submitted,

Dick Lyon

Dick Lyon
President

Mr. SCHEELER. Council member, Catherine Novak, City of Morro Bay.

Ms. NOVAK. Good afternoon, Mr. Chairman. I am Cathy Novak. I am a commercial fisherman from Morro Bay. The Morro Bay entrance, known universally by its towering rock, is the only all weather commercial small craft harbor along a 200 mile stretch of the California coast.

This important harbor of refuge and commercial fishing port has been well treated by the distinguished subcommittee. Its appropriations have provided vital public safety improvements.

However, Mr. Chairman, the entrance construction and channel maintenance job is not yet completed. Therefore, the Morro Bay City Council respectfully asks the subcommittee to accept the President's budget recommendation for $124,000 for construction and $2,580,000 for maintenance in fiscal year 1996.

Finally, as a member of the Morrow Bay's City Council, President of the Morrow Bay Commercial Fisherman's Organization and Vice Chairman of the California Seafood Council, I again thank the Congress for its support of Corps work at Morro Bay and also urge continued congressional support of the West Coast fishing industry, for which Morrow Bay is so strategic and which its economy is based.

Thank you.

[The statement of Ms. Novak follows:]

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER
HONORABLE JOHN MYERS, CHAIRMAN

TESTIMONY ON
F.Y. 1996 ENERGY AND WATER APPROPRIATIONS
MORRO BAY, CALIFORNIA

PRESENTED BY
CITY OF MORRO BAY, CALIFORNIA
CATHY NOVAK, COUNCIL MEMBER
MARCH 29, 1995

Mr. Chairman

The Morro Bay entrance, known universally by its towering rock, is the only all weather commercial/small craft harbor along a 200 mile stretch of the California coast.

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Finally as a member of Morro Bay's City Council, President of the Morro Bay Commercial Fisherman's Organization and Vice Chairman of the California Seafood Council, I again thank the Congress for its support of Corps work at Morro Bay and also urge continued Congressional support of the West Coast fishing industry, for which Morro Bay is so strategic and which its economy is based.

Mr. SCHEELER. Mayor Rosemary Corbin, City of Richmond.

Ms. CORBIN. Mr. Chairman and members of the subcommittee, particularly Congressman Fazio, thank you for the opportunity to appear before you today in support of the fiscal year 1996 energy and water regular appropriations measure.

I am accompanied today by our Port Director, Michael Powers, and Mr. Lawrence Mallon, special counsel to the port. I appear on behalf of myself and the other members of the Richmond City Council. I will briefly summarize the prepared remarks that were submitted by our Port Director, Mr. Powers, and request that they be included in their entirety in the record.

I and the City Council wish to express our gratitude to our local Congressman, the Honorable George Miller, the Honorable Bill Baker, our neighboring Congressman from the Committee on Transportation and Infrastructure, and you, Mr. Chairman, as well as Congressman Fazio, and the other members of this subcommittee and staff for their continuing efforts in funding this navigation project of critical importance to the future development of the port of Richmond.

And yes, it is in the President's budget. Fiscal year 1996 marks the long awaited new construction start of the project for navigation, Richmond Harbor, California, which was authorized first in the Water Resources Development Act of 1986. This project includes phase one deepening of the main Potrero Reach inner harbor and Santa Fe channels from their present 35 feet to 38 feet, and incorporates a new inner harbor turning basin to improve navigation safety for larger vessels transiting the harbor.

We reaffirm our support for the Richmond navigation project and support approval of the President's budget request for $3.296 million in start-up funds to be incorporated in the fiscal year 1996 energy and water appropriations measure before this subcommittee, subject to a request for additional funds to complete construction during the following fiscal year.

Thank you, Mr. Chairman, and members of the subcommittee. This concludes my summary.

Mr. RIGGS. Thank you, Madam Mayor.

I don't know about that very last part, subject to a request for additional funds.

Ms. CORBIN. Well, one thing at a time.

Mr. RIGGS. I think that is what we would call a placeholder.

[The statement of Mr. Powers follows:]

STATEMENT
OF
MICHAEL R. POWERS, PORT DIRECTOR
PORT OF RICHMOND, CALIFORNIA
AT A HEARING ON
FISCAL YEAR 1996 ENERGY AND WATER APPROPRIATIONS
BEFORE
THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C.

WEDNESDAY, MARCH 29, 1995

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE,

THANK YOU FOR THE OPPORTUNITY TO APPEAR ONCE AGAIN BEFORE YOU TODAY IN SUPPORT OF THE FISCAL YEAR 1996 ENERGY AND WATER REGULAR APPROPRIATIONS MEASURE.

I AM MICHAEL R. POWERS, PORT DIRECTOR OF THE PORT OF RICHMOND, CALIFORNIA. I AM ACCOMPANIED BY MR. LAWRENCE G. MALLON, SPECIAL COUNSEL TO THE PORT. I APPEAR ON BEHALF OF MAYOR ROSEMARY CORBIN AND THE OTHER MEMBERS OF THE CITY COUNCIL OF THE CITY OF RICHMOND.

THE CITY COUNCIL RECOGNIZES AND EXPRESSES ITS GRATITUDE TO OUR LOCAL CONGRESSMAN, THE HONORABLE GEORGE MILLER, THE HONORABLE BILL BAKER FROM THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, AND TO YOU, MR. CHAIRMAN, AS WELL AS CONGRESSMAN FAZIO, AND THE OTHER MEMBERS OF THIS SUBCOMMITTEE AND STAFF, FOR THEIR CONTINUING EFFORTS IN FUNDING THIS NAVIGATION PROJECT OF CRITICAL IMPORTANCE TO THE FUTURE DEVELOPMENT OF THE PORT OF RICHMOND.

FISCAL YEAR 1996 MARKS THE LONG-AWAITED NEW CONSTRUCTION START OF THE PROJECT FOR NAVIGATION, RICHMOND HARBOR, CALIFORNIA FIRST AUTHORIZED IN THE WATER RESOURCES DEVELOPMENT ACT OF 1986. THIS PROJECT INCLUDES PHASE ONE DEEPENING OF THE MAIN, POTRERO REACH, INNER HARBOR AND SANTA FE CHANNELS FROM THEIR PRESENT THIRTY FIVE TO THIRTY EIGHT FEET, AND INCORPORATES A NEW INNER HARBOR TURNING BASIN TO IMPROVE NAVIGATION SAFETY FOR LARGER VESSELS TRANSITING THE HARBOR.

THE CITY COUNCIL REAFFIRMS ITS SUPPORT FOR THE RICHMOND NAVIGATION PROJECT AND SUPPORTS APPROVAL OF THE PRESIDENT'S BUDGET REQUEST FOR 3.296 MILLION DOLLARS IN START UP FUNDS TO BE INCORPORATED IN THE FISCAL YEAR 1996 ENERGY AND WATER APPROPRIATIONS MEASURE BEFORE THIS SUBCOMMITTEE, SUBJECT TO A REQUEST FOR ADDITIONAL FUNDS TO COMPLETE CONSTRUCTION DURING THE FOLLOWING FISCAL YEAR.

AS THE NON-FEDERAL PROJECT SPONSOR, THE CITY COUNCIL IS PREPARED TO MEET ITS STATUTORY COST-SHARING REQUIREMENTS UNDER WRDA 86. THE COUNCIL ESTABLISHED THE FIRST NAVIGATION SPECIAL ASSESSMENT DISTRICT IN THE UNITED STATES BY CITY ORDINANCE IN 1989 FOR THIS PURPOSE. THE COUNCIL INTENDS TO LEVY ASSESSMENTS ON CERTAIN REAL PROPERTY OWNERS AS PROJECT BENEFICIARIES UNDER THIS AUTHORITY TO ENSURE THE AVAILABILITY OF LOCAL MATCHING FUNDS IN ADVANCE OF PROJECT CONSTRUCTION.

AFTER RIGOROUS TESTING CONDUCTED UNDER JOINT EPA-CORPS OF ENGINEERS SUPERVISION, MOST OF THE DREDGED MATERIAL ASSOCIATED WITH THE NAVIGATION PROJECT HAS BEEN DETERMINED TO BE SUITABLE FOR UNCONFINED AQUATIC DISPOSAL. FOR THE REMAINDER OF PROJECT MATERIAL, WE ARE PROCEEDING WITH PLANS TO EITHER IMPROVE AN EXISTING UPLAND DREDGED MATERIAL DISPOSAL SITE WITHIN PORT BOUNDARIES, OR UTILIZE AN OFF-SITE LOCATION CHARACTERIZED AS A WETLAND RESTORATION PROJECT SUBJECT TO NECESSARY PERMIT APPROVAL FOR THAT PROJECT.

THE FIRST ALTERNATIVE WILL REQUIRE A SUBSTANTIAL FINANCIAL COMMITMENT BY THE LOCAL SPONSOR THIS YEAR WELL IN ADVANCE OF THE COMMENCEMENT OF ACTUAL CONSTRUCTION.

IN THIS REGARD WE ARE SEEKING ADOPTION BY THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE IN A PROPOSED WRDA 95 OF A CLARIFICATION OF THE APPLICABILITY OF A PROVISION INCORPORATED IN LAST YEAR'S SIMILAR MEASURE WITH HOUSE APPROVAL BUT WHICH

FAILED OF ENACTMENT IN THE SENATE PRIOR TO ADJOURNMENT. THIS PROVISION, WHICH ENJOYS BROAD BIPARTISAN AS WELL AS ADMINISTRATION SUPPORT, AMENDS WRDA 86 TO EXTEND COST-SHARING TO IMPROVEMENTS MADE TO LOCALLY-ACQUIRED UPLAND DISPOSAL AREAS FOR DREDGED MATERIAL. HAD WRDA 94 BEEN ENACTED, OUR ANTICIPATED EXPENDITURES THIS YEAR WOULD ALREADY BE SUBJECT TO THAT PROVISION.

WE NOW SEEK CLARIFICATION THAT WILL ENSURE THAT WE ARE SUBJECT TO ANY SUCH PROVISION THAT IS ENACTED BY CONGRESS LATER THIS YEAR OR THEREAFTER. OUR PROPOSED CLARIFYING LANGUAGE --WHICH I AM ADVISED ENJOYS THE SUPPORT OF THE AMERICAN ASSOCIATION OF PORT AUTHORITIES-- WOULD CLARIFY THE APPLICABLE TIME PERIOD FOR QUALIFIED EXPENDITURES BY A LOCAL SPONSOR OF A NAVIGATION PROJECT TO RECEIVE CREDIT FOR COST-SHARING PURPOSES FOR IMPROVEMENTS TO UPLAND DREDGED MATERIAL DISPOSAL AREAS TO REFLECT EXPENDITURES MADE BEFORE THE TIME OF CONSTRUCTION OR PROJECT COMPLETION, WHICHEVER COMES LATER.

THIS APPROACH IS BOTH LOGICAL AND EQUITABLE IN THAT IT TRACKS ACTUAL CUSTOM AND PRACTICE UNDER PROJECT COOPERATION AGREEMENTS FOR NAVIGATION PROJECTS AS BETWEEN THE CORPS AND THE LOCAL SPONSOR IN WHICH ALL OPEN ITEMS CONCERNING CONSTRUCTION COST-SHARING AND LOCAL SPONSOR CREDITS FOR LANDS, EASEMENTS AND RIGHTS-OF-WAY ARE APPORTIONED AND FINALLY DETERMINED AS PART OF A FINAL ACCOUNTING COINCIDENT WITH

COMPLETION OF PROJECT CONSTRUCTION. WE COMMEND IT TO THE COMMITTEES OF JURISDICTION OF THE HOUSE AND SENATE FOR THEIR CONSIDERATION AND INCORPORATION IN WRDA 95 OF THE UPLAND DISPOSAL AREA COST-SHARING PROVISION.

WE ARE SEEKING SIMILAR PROTECTION FROM THE CORPS OF ENGINEERS IN THE LANGUAGE OF THE PROJECT COOPERATION AGREEMENT TO BE EXECUTED LATER THIS YEAR.

IN SHORT, AS THE LOCAL SPONSOR WE REAFFIRM OUR SUPPORT AND FINANCIAL COMMITMENT TO THE SUCCESSFUL PROSECUTION OF THIS NAVIGATION PROJECT OF SIGNIFICANT ECONOMIC BENEFIT TO THE NATION, REGION, AND LOCAL ECONOMY. WE ARE PREPARED TO MEET OUR COMMITMENTS AS PARTNERS WITH THE CORPS OF ENGINEERS IN THIS VENTURE. WE ASK THE SUBCOMMITTEE'S HELP TO ASSURE THE AVAILABILITY OF FEDERAL FUNDS IN NEXT YEAR'S BUDGET FOR THIS PURPOSE.

AGAIN. THANK YOU MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE FOR THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY. THIS CONCLUDES MY REMARKS. I LOOK FORWARD TO REPORTING TO YOU UPON THE SUCCESSFUL COMPLETION OF THIS PROJECT.

Mr. SCHEELER. Dennis Hunter, Vice President and Board of Harbor Commissioner, Humboldt Bay Harbor.

Mr. RIGGS. You don't need to introduce Dennis Hunter to me, because he happens to be one of my closest personal friends, and I know he is going to introduce Roy Curless who is with him here today. But, Dennis, it is good to see you here. And I hope you know my strong support for the request that you are about to make.

Mr. HUNTER. Thank you very much.

Mr. Chairman and members of the subcommittee, thank you for this opportunity.

I am Dennis Hunter, Commissioner of the Humboldt Bay Harbor Recreation and Conservation District in Eureka, California. And with me, as mentioned, is our board president, Roy Curless. And we wish to express our gratitude to our Congressman, the Honorable Frank Riggs, for everything that he is doing for our area of the State, as well as Congressman Fazio and the other members of the subcommittee and staff for your continuing efforts on our behalf.

The Humboldt Bay deepening project is crucial to any future development of our port, and for the entire north coast region of California. And I wish to revise and extend my remarks for the record, and I yield back the remainder of my time.

[The statement of Mr. Hunter follows:]

COMBINED STATEMENT
OF
COMMISSIONERS DENNIS G. HUNTER AND ROY L. CURLESS
HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION DISTRICT
AT A HEARING ON
FISCAL YEAR 1996 ENERGY AND WATER APPROPRIATIONS
BEFORE
THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C.

WEDNESDAY, MARCH 29, 1995

EXECUTIVE SUMMARY

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE,

THANK YOU FOR THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY IN SUPPORT OF THE FISCAL YEAR 1996 ENERGY AND WATER REGULAR APPROPRIATIONS MEASURE.

I AM COMMISSIONER DENNIS HUNTER, AND ACCOMPANYING ME IS OUR COMMISSION PRESIDENT, ROY CURLESS. WE APPEAR ON BEHALF OF THE HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION DISTRICT IN EUREKA, CALIFORNIA. WE ARE ACCOMPANIED BY MR. LAWRENCE G. MALLON, SPECIAL COUNSEL TO THE HARBOR DISTRICT. I WILL BRIEFLY

SUMMARIZE OUR PREPARED REMARKS AND REQUEST THAT THEY BE INCLUDED IN THEIR ENTIRETY IN THE RECORD AT THIS POINT.

THE COMMISSION RECOGNIZES AND EXPRESSES ITS GRATITUDE TO OUR LOCAL CONGRESSMAN, THE HONORABLE FRANK RIGGS, A MEMBER OF THIS COMMITTEE, AND TO YOU, MR. CHAIRMAN, AS WELL AS CONGRESSMAN FAZIO, AND THE OTHER MEMBERS OF THIS SUBCOMMITTEE AND STAFF, FOR THEIR CONTINUING EFFORTS IN FUNDING THIS NAVIGATION PROJECT OF CRITICAL IMPORTANCE TO THE FUTURE DEVELOPMENT OF HUMBOLDT BAY AND COUNTY, AND THE ENTIRE NORTHCOAST REGION OF THE STATE OF CALIFORNIA.

FOR THOSE UNFAMILIAR WITH THE GEOGRAPHY, HUMBOLDT BAY IS THE ONLY DEEP-DRAFT NATURAL HARBOR STRATEGICALLY SITUATED ALONG FIVE HUNDRED MILES OF PACIFIC COASTLINE BETWEEN SAN FRANCISCO AND COOS BAY, OREGON.

THE COMMISSION REAFFIRMS ITS SUPPORT FOR THE HUMBOLDT HARBOR AND BAY DEEPENING PROJECT, AND SUPPORTS APPROVAL OF THE PRESIDENT'S BUDGET REQUEST FOR PRECONSTRUCTION ENGINEERING AND DESIGN FUNDS IN THE FISCAL YEAR 1996 ENERGY AND WATER APPROPRIATIONS MEASURE BEFORE THIS SUBCOMMITTEE.

APPROPRIATION OF THE REQUESTED AMOUNTS WILL ENSURE A SMOOTH TRANSITION FROM THE COMPLETED FINAL PROJECT FEASIBILITY STUDY TO PROJECT DESIGN AND CONSTRUCTION NOW SCHEDULED TO COMMENCE IN 1997. IN ORDER TO MEET THAT SCHEDULE, PROJECT

AUTHORIZATION MUST OCCUR IN A WATER RESOURCES DEVELOPMENT ACT (WRDA) 1995 OR 1996. WE ARE WORKING WITH OUR CONGRESSIONAL DELEGATION AND THE ADMINISTRATION TO ENSURE TIMELY PROJECT AUTHORIZATION.

WE LOOK FORWARD TO APPEARING BEFORE THIS SUBCOMMITTEE ON FUTURE OCCASIONS TO PROVIDE PROGRESS REPORTS CONCERNING THE SUCCESSFUL PROSECUTION OF THIS PROJECT.

THANK YOU MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE. THIS CONCLUDES MY SUMMARY REMARKS.

Mr. RIGGS. Dennis, you have been watching too much C–SPAN. But let's get one thing on the record, though, that is, the President's request, the President's proposal in his budget. Would you like to state what he has proposed?

Mr. HUNTER. Maybe you better do that.

Mr. RIGGS. Well, Mark, could you—do you remember the exact figure? Let me say that the—that this particular——

Mr. HUNTER. Four hundred thousand, I think it is around 400,000.

Mr. RIGGS. This particular request is in the President's budget. Simply want to note that for the record. And it is good to have you here and I am pleased that you would come back and testify before the subcommittee.

Mr. HUNTER. Thank you.

Mr. RIGGS. It is a special treat for me.

Mr. HUNTER. Thank you very much.

Mr. SCHEELER. Next we have Commissioner Don Sherer, San Mateo Harbor District.

Mr. SHERER. Good afternoon, Mr. Chairman. I am Don Sherer, commercial fisherman and a member of the board of directors of the San Mateo County Harbor Commission.

I am here today to request a $400,000 congressional appropriation in the Army Corps of Engineers' operation and maintenance budget to fund maintenance and possible extension of the west outer harbor breakwater built by the Corps of Army Engineers in 1961. This is not in the President's or the Corps' budget in fiscal 1996.

The district is very concerned about the physical condition of the entire breakwater and breaching of the land area which will cause potentially serious erosion problems in the future. The San Mateo County Harbor District is also experiencing serious overtopping of the breakwater and a rapid increase in sediment disposition from breakwater failure. These problems are very serious and must be addressed immediately to avoid great harm to Pillar Point Harbor, the only commercial harbor of refuge which exists between San Francisco and Santa Cruz.

The adjacent property, Air Force property, is also in danger of being eroded to a point where a severe southeastern storm can cause sloping failure and serious damage to our breakwater, commercial vessels and property within Pillar Point Harbor. Additionally, the overtopping occurring at the west breakwater will necessitate the need for maintenance dredging in the near future; a problem and cost which can and should be avoided by quick action now.

The district is also concerned about the potential loss of life and property if this area is not evaluated and/or repaired by the Corps of Engineers immediately.

Mr. SCHEELER. Captain Jim——

Mr. RIGGS. Let me ask you, is there a local sponsor for the project?

Mr. SHERER. No.

Mr. RIGGS. At the present time you have not identified a local sponsor? Thank you.

[The statement of Mr. Sherer follows:]

CMANC - WASHINGTON, D.C.

TESTIMONY BEFORE THE

U.S. HOUSE OF REPRESENTATIVES

APPROPRIATIONS SUBCOMMITTEE ON

ENERGY AND WATER DEVELOPMENT

March 29, 1995

Contact:
Donald F. Guluzzy, General Manager
San Mateo County Harbor District
One Johnson Pier
Half Moon Bay, CA 94019
Telephone: (415) 726-4723
FAX: (415) 726-7740

The San Mateo County Harbor District is a county-wide special district in Northern California, near San Francisco.

The San Mateo County Harbor District is responsible for operating, developing and maintaining two small craft marinas and harbors: Oyster Point Marina/Park in South San Francisco and Pillar Point Harbor near Half Moon Bay, CA.

THE SAN MATEO COUNTY HARBOR DISTRICT IS HERE TODAY TO REQUEST CONGRESSIONAL SUPPORT FOR AN ADDITIONAL APPROPRIATION OF $300,000 TO COMPLETE A RECONNAISSANCE STUDY AND INITIATE A FEASIBILITY STUDY TO DETERMINE THE DEGREE OF FEDERAL INTEREST AT PILLAR POINT HARBOR NEAR HALF MOON BAY, WHICH IS A VERY ACTIVE

COMMERCIAL FISHING PORT. IN 1992, PILLAR POINT HARBOR LANDED ALMOST 10 MILLION POUNDS OF FISH VALUED IN EXCESS OF $4.8 MILLION.

THE DISTRICT AND ACOE FORGED A PARTNERSHIP IN THE LATE "60s" TO BUILD A 2,620 FOOT WEST OUTER BREAKWATER AND A 3,670 FOOT EAST OUTER BREAKWATER TO CREATE A SAFE HARBOR OF REFUGE FOR ALL THE BOATERS WHO HAD NO SAFE PORT BETWEEN SAN FRANCISCO AND SANTA CRUZ, AN AREA COMPRISING 30+ MILES OF COASTLINE.

THE HARBOR DISTRICT HAS ITS OWN SEARCH AND RESCUE UNIT WHICH AVERAGES BETWEEN 80-120 RESCUES EVERY YEAR. OUR SEARCH AND RESCUE SERVICE HAS SAVED OVER 500 LIVES AND OVER $15 MILLION IN PERSONAL PROPERTY OVER THE LAST 20 YEARS; WE HAVE ALSO ELIMINATED THE NEED FOR A COAST GUARD FACILITY AT OUR HARBOR WHICH RESULTS IN SIGNIFICANT SAVINGS TO THE FEDERAL GOVERNMENT. OUR PARTNERSHIP WITH THE COAST GUARD HAS BEEN MUTUALLY BENEFICIAL; IN FACT, THE COAST GUARD HAS ISSUED SEVEN COMMENDATIONS TO DISTRICT STAFF SINCE 1982 FOR OUR SEARCH AND RESCUE EFFORTS. A COPY OF THESE COMMENDATIONS ARE ENCLOSED WITH THIS STATEMENT FOR YOUR REVIEW.

A FACT SHEET PROVIDING MORE DETAIL ON DISTRICT SEARCH AND RESCUE SERVICES IS ALSO ENCLOSED FOR THE RECORD.

PILLAR POINT HARBOR HAS NEVER REQUIRED ANY DREDGING OR OTHER MAJOR WORK FOR ONE THIRD OF A CENTURY. IT NOW REQUIRES DREDGING AND OTHER RELATED NAVIGATION AND WATER RESOURCES WORK.

A COMPLETED RECONNAISSANCE STUDY AND FEASIBILITY REPORT WOULD DETERMINE IF FEDERAL PARTICIPATION IS WARRANTED AND IN THE NATIONAL INTEREST. WE STRONGLY BELIEVE THAT OUR INTEREST IS IN THE PUBLIC INTEREST AND IS A WORTHWHILE PUBLIC INVESTMENT FOR THE COUNTRY.

THANK YOU, MR. CHAIRMAN, FOR ALLOWING ME TO TESTIFY IN SUPPORT OF OUR REQUEST FOR AN ADDITIONAL $300,000 APPROPRIATION IN THE CORPS' BUDGET.

DFG/mc
reference\speech2.95

ENCLOSURES: (2)

U.S. Department of Transportation

United States Coast Guard

Commander
U.S. Coast Guard Group
San Francisco

Yerba Buena Island
San Francisco, CA 94130-5013
Staff Symbol:
Phone:

21 February 1995

Mr. Robert McMahon
Pillar Point Harbormaster
#1 Johnson Pier
Half Moon Bay, CA 94019

Dear Mr. McMahon:

Thank you for your outstanding response during two dangerous search and rescue cases that occurred on 18 February 1995.

In the first case, you responded to a Mayday call from the S/V CIRCE, a 30 foot sloop that had run aground on the rocks at the Pillar Point entrance. Shortly after getting underway you suffered an engine casualty, but continued to proceed to the scene. You expertly maneuvered to pass a towline on the CIRCE, and instructed her crew on the hookup. You had the vessel safely in tow when our helicopter arrived on scene, and no further assistance was required of us.

Less than an hour later, another Mayday call came in from the S/V MARY THREE, reporting that she was aground on the rocks on the north side of Pillar Point. You arrived on scene, but were unable to get to the vessel because of the rocks and bad weather in the vicinity. You quickly assessed the situation and informed us that it was too dangerous for our helicopter to make a rescue because of the close proximity of cliffs combined with the fog and darkness. Once on shore you maintained communications with us, providing experienced, precise information to both our controller and the helicopter on the shoreside activity.

Your assistance in both of these cases was outstanding. Your professional and thorough reports while you were on scene as our "eyes" made our job much easier. Your quick response helped save five lives and thousands of dollars in property. I commend you for your professionalism and skill.

Sincerely,

T. P. HART
Captain, U. S. Coast Guard
Commander, USCG Group San Francisco

U.S. Department of Justice

Immigration and Naturalization Service

SFR 1230/4 (I-8)

District Director

Appraisers Building
630 Sansome Street
San Francisco, CA. 94111

June 03, 1993

Bob McMahon
Harbor Master
San Mateo County Harbor District
One Johnson Pier
P.O. Box 39
El Granada, CA 94018

Dear Sir:

It is my pleasure to thank you and all of the other officers who assisted the Immigration and Naturalization Service (INS) with the Chinese smuggling case on June 02, 1993.

If it were not for your officers prompt and intelligently coordinated efforts, the INS would have lost critical physical evidence in support of our smuggling case.

I would like to complement your officers on the enthusiasm and professionalism they exhibited during the ordeal. On behalf of the Special Agents and their supervisors from the Investigations Branch, I wish thank you and your officers for a job well done.

Sincerely,

Joseph F. Brandon, Jr.
Assistant District Director
for Investigations
San Francisco, California

DEPARTMENT OF TRANSPORTATION

UNITED STATES COAST GUARD

Public Service Commendation

IN RECOGNITION *of notable services which have assisted greatly in furthering the aims and functions of the Coast Guard*

This certificate is awarded to **Robert McMahon**

Executed this 13th *day of* August, 1986

at Alameda, California.

John D Costello

Vice Admiral John D. Costello
United States Coast Guard
Commander, Twelfth Coast Guard District

Public Service Commendation

to

Robert A. McMahon
Pillar Point Harbor Master

Pillar Point Harbor is located 27 miles south of the Golden Gate on the rugged California coast. The nearest Coast Guard search and rescue facility is a minimum of two hours away, and more often four to six hours away, depending on weather and sea conditions.

On numerous occasions, Robert McMahon has been the first on scene to render aid to stricken mariners, often at great risk to his vessel and crew. He has stayed on scene for long hours until the cases were completed, supplying the Coast Guard with onscene communications.

On October 24, 1985, the fishing vessel Cuu Long became disabled. McMahon provided a Vietnamese interpreter to assist the Coast Guard with communications, and closely followed the case until the vessel was safely moored at Pillar Point Harbor.

During severe weather, in December 1985, the fishing vessel Wynn D II began taking on water, and minutes later the sailing vessel Girlfriend III called a mayday. McMahon mustered a boat and crew for assistance. Due to excessive radio traffic on channel 16, McMahon coordinated his rescue effort with Coast Guard Group San Francisco by landline. He also coordinated a beach search of the entire Half Moon Bay coastline looking for survivors. He stayed on the case to its conclusion some 24 hours later.

On February 22, 1986, a vessel capsized outside Pillar Point Harbor during rough seas. Again, at great risk to himself and his crew, McMahon assisted the Coast Guard in the rescue of two people.

These are but a few examples of McMahon's lifesaving services, and assistance to the United States Coast Guard with its search and rescue missions. Such courage, eagerness and dedication is heartily commended by the United States Coast Guard, and is in keeping with the highest traditions of the sea.

DEPT. OF TRANSP., USCG, CG-4771A (10-72)

DEPARTMENT OF TRANSPORTATION

UNITED STATES COAST GUARD

1790

Public Service Commendation

IN RECOGNITION *of notable services which have assisted greatly in furthering the aims and functions of the Coast Guard*

This certificate is awarded to

ROBERT A. McMAHON

Executed this 14th *day of* April, 1983

at San Francisco, California.

VICE ADMIRAL CHARLES E. LARKIN, USCG
Commander, 12th Coast Guard District
By direction of the Commandant

DEPARTMENT OF TRANSPORTATION

UNITED STATES COAST GUARD

Public Service Commendation

IN RECOGNITION *of notable services which have assisted greatly in furthering the aims and functions of the Coast Guard*

This certificate is awarded to

BOB MCMAHON
ROBERT HANSEN
DON COATS
DAN TEMKO
RICK KREBS
ALAN CATTERSON
JOHN DRAPER
SCOTT COOK
DAVE LEWIS

Executed this 7TH *day of* OCTOBER 1992

at LONG BEACH, CALIFORNIA

M E Gilbert

M. E. GILBERT
Rear Admiral, U. S. Coast Guard
Commander, 11th Coast Guard District

Public Service Commendation

to

PILLAR POINT HARBOR PATROL
SAN MATEO COUNTY HARBOR DISTRICT, CALIFORNIA

For continued exemplary service to the boating community in the advancement of the Coast Guard's mission; Search and Rescue, Recreational and Commercial Vessel Safety and Marine Environmental Protection. From January 1, 1990 to July 15, 1992, Pillar Point Harbor Patrol completed 200 search and rescue cases and 40 boating safety cases. As a result of their quick and well trained response over 20 persons were saved from life threatening situations and $250,000 worth of property recovered. Pillar Point Harbor Patrol Boat RADON is the only search and rescue resource available 24 hours a day, 365 days a year between the Golden Gate and Santa Cruz and they have gained a well deserved reputation of quick response and reliability.

SAN MATEO COUNTY HARBOR DISTRICT

PILLAR POINT HARBOR - HALF MOON BAY, CA

SEARCH AND RESCUE SERVICE - FACT SHEET

The San Mateo County Harbor District has been providing commercial fishermen and recreational boaters with Search and Rescue services (SAR) for over 20 years of its existence. The District has annually averaged 80-120 rescues per year which has resulted in saving over 500 lives and millions of dollars in personal property for various boaters who were in danger of losing their property or lives when their boats failed in some way while on the Pacific Ocean.

The Harbor District has been utilizing a 32-foot fiberglass boat called the Radon since 1972. This boat has been an excellent vessel with which to save lives and tow mariners who have been in distress. The Pillar Point Harbor Master and staff have exhibited extraordinary courage by braving the ravages of the Pacific Ocean during dangerous storms, in the middle of the night, in heavy fog, and on other occasions when no other vessel was available to protect the lives and property of San Mateo County boaters.

The Pillar Point Harbor staff has been commended by the United States Coast Guard, the California State Department of Boating and Waterways and many boaters who have been saved by their heroic efforts in the past.

In 1989, the Harbor District procured approximately $10,000 in grant funds from the Department of Boating and Waterways toward the purchase of two new gasoline engines for the search and rescue vessel. The Harbor District invested over $27,000 for the purchase of these engines which has resulted in a modern up-to-date power plant which will continue to serve the boaters of San Mateo County in the future.

The Harbor District has expended in excess of $100,000 over the years to maintain its SAR vessel. The District annually expends over $60,000 per year to operate and staff its Search and Rescue Service and does not recover its costs from the public whose property and lives have been repeatedly saved by Harbor District staff.

SEARCH-&.RES (3/8/95)

Mr. SCHEELER. Captain Jim Stillwell, President of the Harbor Commission of San Mateo Harbor District.

Mr. STILLWELL. Mr. Riggs, honorable committee, I am here to seek, on behalf of the harbor district, the $225,000 that has been requested in the President's budget, plus an additional $300,000 to complete the reconnaissance study and initiate the feasibility study to determine the degree of Federal interest in Pillar Point Harbor, near Half Moon Bay.

Now, there is no question that this harbor should be of Federal interest. They created it with their Federal breakwater that they put in in the early 1960s. Additionally, we are a harbor of refuge, and starting May 1, we will have 600 boats in that harbor from California, Oregon, Washington, and Alaska for the start of the salmon season.

Over the years, we have operated a search and rescue service out of Pillar Point Harbor, which has received eight commendations from the United States Coast Guard, saved hundreds of lives, and millions of dollars' worth of property. This is all done at no cost to the Federal Government, thereby relieving the United States Coast Guard to carry out law enforcement functions elsewhere.

Our people cooperate fully with the Coast Guard. We drill with them. We act as an unofficial arm in that area. There is no question in my mind that the Federal Government should be concerned with these harbors of refuge that they have created.

I speak as a master mariner. Mr. Sherer spoke as a commercial fisherman. This harbor provides a safe refuge for numerous vessels exercising the rights of innocent passage on the California coast, and should be under Federal sponsorship under the commerce clause. Thank you.

Mr. RIGGS. Thank you. I wish you could tell us what kind of commercial salmon season we are going to have off the California coast.

Mr. STILLWELL. Well, according to the sport fishermen, sir, the salmon in our area are going to be very good this year. And they are coming in big.

Mr. SCHEELER. Ellen Johnck, Executive Director, Bay Planning Coalition.

Ms. JOHNCK. Mr. Chairman, members of the committee, the members of the Bay Planning Coalition are in essence the San Francisco Bay regional component of C–MANC.

We support the President's 1996 civil works budget for harbor construction, maintenance and related missions, with additional limited funding for a specified number of projects as indicated in the list of C–MANC recommendations which will appear in the written record.

We also support the President's budget augmentation for the Corps' regulatory program for a wetlands administrative appeal process. Further, we want to underscore the importance of funding for the cooperative planning process for dredged material disposal, known as the long-term management strategy, the LTMS, in the San Francisco Bay, so that we can complete the implementation plan.

Finally, we want to recommend that your committee in its decision making in the budget process emphasize two criteria. One, that you direct funds to high-priority programs such as navigation improvements and construction, including dredging and disposal, which build our Nation's assets. Our ports and harbors are an integral element of our Nation's intermodal transportation system and funds directed to them will provide long-term investment and trade, which as you know is a significant tool of economic growth.

Secondly, we want you to emphasize the cost savings to be achieved through Corps restructuring, including the redefinition of the roles of its various organizational office levels and the streamlining of the permit process and the regulatory program as a more cost-effective way to achieve budget reduction goals, rather than by eliminating missions. Thank you.

Mr. RIGGS. Thank you. Very constructive suggestions. I wish we had time to discuss them more indepth. But appreciate your recommendations.

[The statement of Ms. Johnck follows:]

BEFORE

UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER
HONORABLE JOHN MYERS, CHAIRMAN

TESTIMONY ON F.Y. 1996 ENERGY AND WATER APPROPRIATIONS SAN FRANCISCO BAY, CALIFORNIA

PRESENTED BY
BAY PLANNING COALITION, SAN FRANCISCO, CALIFORNIA
ELLEN JOHNCK, EXECUTIVE DIRECTOR
MARCH 29, 1995

Founded in 1983, the Bay Planning Coalition is a membership-based, non-profit organization representing the broad spectrum of maritime and related shoreline business and industry including the five major public and private port authorities, oil refineries, recreational marinas, and local government. We exist to advocate the reasoned, balanced and fair regulation of the use of water and land in the S. F. Bay regional and thus ensure the successful implementation of water resource development projects. We are the San Francisco Bay regional component of the California Marine Affairs and Navigation Conference (C-MANC).

In summary our points are as follows:

1. we support the President's FY 1996 Civil Works Budget for harbor construction and related missions, with limited additional funding for a specified number of projects (as indicated on the attached list); and also the Budget augmentation for the Corps' Regulatory Program for a wetlands administrative appeal process;

2. we also specifically support and want to underscore the importance of funding for the cooperative planning process for dredged material disposal, known as the Long-Term Management Process (LTMS) in the S. F. Bay region;

3. we object to the Administration's proposal to deemphasize the Corps mission in the areas of recreational harbor maintenance, as these harbors comprise a significant cumulative economic contribution in the Bay Area; and flood control, as there is no other entity with the strategic capability to carry out this mission, other than the Corps;

4. we recommend that the U.S. Congress, in its decisionmaking in the Appropriations process adhere to these two objectives:

a) emphasize the cost savings to be achieved through Corps restructuring, including the redefinition of the roles of its various organizational office levels, and the streamlining of the permit process in the Regulatory Program as a more cost-effective way to achieve budget reduction goals rather than by eliminating missions; and

b) direct funds to high priority programs, such as navigation improvements and construction, including dredging, which build our nation's assets and provide long-term investment in economic growth.

We are sensitive to and agree with the very determined efforts of both the Administration and the 104th Congress to implement substantial budget cuts. However, the Administration's proposed cuts and deemphasis on important Corps' missions is not synchronized with the decisionmaking on the high-priority programs necessary to build the nation's assets. The Federal capital investment in the nation's maritime infrastructure has produced a significant national asset which benefits trade, and trade is a tool of economic growth.

The projects proposed for additional funding on the C-MANC list deserve support based on the philosophy that the reference point for decisionmaking is to continue the necessary investment and not allow our assets to decline. The projects on the C-MANC list are the economic linchpin for the nation, the state of California and the S. F. Bay region in terms of jobs and trade dollars.

The new economic top dog is international trade and exports. The California Chamber of Commerce reported in 1994 that over $200 billion in imports and exports are now flowing through California - - and increase of more than $80 billion in the last 10 years, or about 3x the 1982 level. This is 1/5 of total U. S. exports. S. F. Bay area exports in 1991 were $11.6 billion, up from $7.6 billion in 1988. The Bay Area accounts for 21% of total West Coast exports.

Trade is estimated to account for 50% of California's real economic growth and most of the credit goes to the existence of the California port system. Our modern ports now serve as intermodal gateways for waterborne, airborne and surface borne cargo, and this conjunction of transportation modes is vital to our region's ability to compete in international trade. Further, an integral component of the marine infrastructure, which until recently has been like a forgotten stepchild, is dredging. Most harbors around the country require regular dredging of its shipping channels to provide for adequate depths and the safety of all vessels engaged in navigation and commerce. Of particular note is a very important planning project for the S. F. Bay region, and that is the Long-Term Management Strategy for Dredged Material Disposal (LTMS).

Thank you for your consideration of our recommendations to adopt a methodology for decisionmaking that applies long-term investment for economic growth in our maritime assets.

Mr. SCHEELER. Larry Steffen, Port Director, Moss Landing Harbor.

Mr. STEFFEN. Mr. Chairman, members of the committee, the biggest storm on record ever to hit Monterey County sunk the Moss Landing Harbor in California. The week prior to the big storm that devastated the central California coast earlier this month, weather forecasters had issued warnings that the upcoming storm packed record setting moisture and was dangerous.

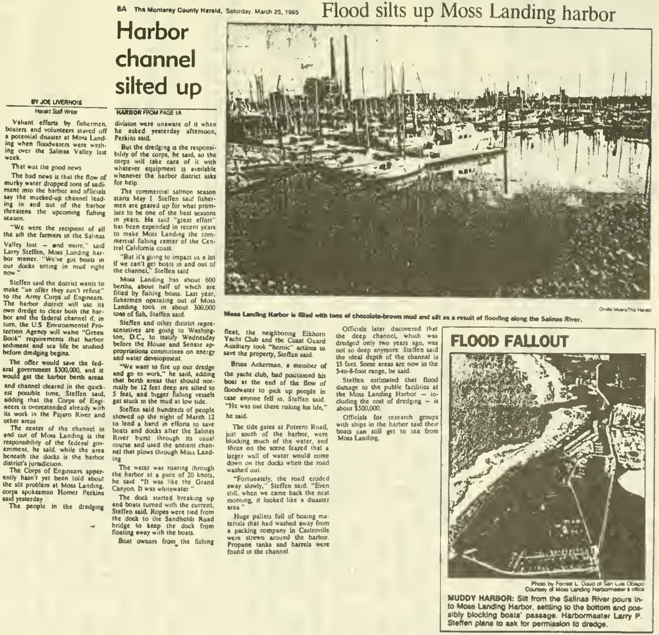
While the storm stalled off the central California coast for several days, the Moss Landing Harbor District staff and vessel owners made the usual pre-storm preparations: securing vessels, warning vessel owners and checking dock lines. As the storm rolled on the central coast over the weekend, heavy rains set all-time records and the already soaked watershed began to flood.

Levees failed in Carmel Valley, Castroville, Pajaro, and Salinas Valley. Excessive rainwater runoff into the 125 long north flowing Salinas River flooded the lower Salinas River, the towns of Spreckels and Castroville, and also destroyed homes and farmland. Upstream of Moss Landing Harbor, floodwaters backed up behind the Potrero Road tie gates and the high berm which protects the harbor. By 11 p.m. Sunday night, the Potrero Road berm failed and the Salinas River was rushing through the south harbor in excess of 20 knots. Large commercial fishing recreational vessels were laid over at 45 degrees and the docks buckled under the strain. Docks and large vessels swung 50 degrees as the tremendous water pressure pushed them up against each other. The main dock gave way, pilings broke. As a last resort, the harbor emergency crew and volunteers secured heavy lines from the docks and vessels and pilings upstream to the county-owned Sandholdt Bridge. The bridge actually held the vessels and the docks and the pilings through the night, and the crisis lasted until 5 o'clock Monday morning.

Damage to the docks, pilings, from the storm, is estimated at $500,000 and the harbor district is presently making repairs. FEMA and the California State Office of Emergency Services, OES, has completed additional damage survey. However, the harbor district has identified heavy siltation in the harbor, which creates an economic and a safety risk to the commercial fishing fleet and research vessels in the harbor. This requires immediate emergency action.

At this time, the Moss Landing Harbor District requests the following: Federal assistance to accomplish the immediate dredging of 150,000 cubic yards of silt and sand sediment deposited in the harbor, and emergency funding of $1.5 million for the U.S. Army Corps of Engineers to accomplish the emergency dredging necessitated by the catastrophic storm of the weekend of March 18, 1995. Thank you.

[The statement of Mr. Steffen follows:]



8A The Monterey County Herald, Saturday, March 25, 1995

Flood silts up Moss Landing harbor

Harbor channel silted up

BY JOE LIVERNOIS
Herald Staff Writer

Valiant efforts by fishermen, boaters and volunteers staved off a potential disaster at Moss Landing when floodwaters were washing over the Salinas Valley last week.

That was the good news

The bad news is that the flow of murky water dropped tons of sediment into the harbor and officials say the mucked-up channel leading in and out of the harbor threatens the upcoming fishing season.

"We were the recipient of all the silt the farmers in the Salinas Valley lost — and more," said Larry Steffen, Moss Landing harbor master. "We've got boats in our docks sitting in mud right now."

Steffen said the district wants to make "an offer they can't refuse" to the Army Corps of Engineers. The harbor district will use its own dredge to clear both the harbor and the federal channel if, in turn, the U.S Environmental Protection Agency will waive "Green Book" requirements that harbor sediment and sea life be studied before dredging begins.

The offer would save the federal government $300,000, and it would get the harbor berth areas and channel cleared in the quickest possible time, Steffen said, adding that the Corps of Engineers is overextended already with its work in the Pajaro River and other areas

The center of the channel in and out of Moss Landing is the responsibility of the federal government, he said, while the area beneath the docks is the harbor district's jurisdiction.

The Corps of Engineers apparently hasn't yet been told about the silt problem at Moss Landing, corps spokesman Homer Perkins said yesterday

The people in the dredging

HARBOR FROM PAGE 1A

division were unaware of it when he asked yesterday afternoon, Perkins said.

But the dredging is the responsibility of the corps, he said, so the corps will take care of it with whatever equipment is available whenever the harbor district asks for help.

The commercial salmon season starts May 1. Steffen said fishermen are geared up for what promises to be one of the best seasons in years. He said "great effort" has been expended in recent years to make Moss Landing the commercial fishing center of the Central California coast.

"But it's going to impact us a lot if we can't get boats in and out of the channel," Steffen said

Moss Landing has about 600 berths, about half of which are filled by fishing boats. Last year, fishermen operating out of Moss Landing took in about 300,000 tons of fish, Steffen said.

Steffen and other district representatives are going to Washington, D.C., to testify Wednesday before the House and Senate appropriations committees on energy and water development.

"We want to fire up our dredge and go to work," he said, adding that berth areas that should normally be 12 feet deep are silted to 5 feet, and bigger fishing vessels get stuck in the mud at low tide.

Steffen said hundreds of people showed up the night of March 12 to lend a hand in efforts to save boats and docks after the Salinas River burst through its usual course and used the ancient channel that plows through Moss Landing

The water was roaring through the harbor at a pace of 20 knots, he said "It was like the Grand Canyon. It was whitewater"

The dock started breaking up and boats turned with the current, Steffen said. Ropes were tied from the dock to the Sandholdt Road bridge to keep the dock from floating away with the boats.

Boat owners from the fishing fleet, the neighboring Elkhorn Yacht Club and the Coast Guard Auxiliary took "heroic" actions to save the property, Steffen said.

Brian Ackerman, a member of the yacht club, had positioned his boat at the end of the flow of floodwater to pick up people in case anyone fell in, Steffen said. "He was out there risking his life," he said.

The tide gates at Potrero Road, just south of the harbor, were blocking much of the water, and those on the scene feared that a larger wall of water would come down on the docks when the road washed out.

"Fortunately, the road eroded away slowly," Steffen said. "Even still, when we came back the next morning, it looked like a disaster area"

Huge pallets full of boxing materials that had washed away from a packing company in Castroville were strewn around the harbor. Propane tanks and barrels were found in the channel.

Officials later discovered that the deep channel, which was dredged only two years ago, was not so deep anymore. Steffen said the ideal depth of the channel is 15 feet. Some areas are now in the 5-to-8-foot range, he said.

Steffen estimated that flood damage to the public facilities at the Moss Landing Harbor — including the cost of dredging — is about $500,000.

Officials for research groups with ships in the harbor said their boats can still get to sea from Moss Landing.

Orville Myers/The Herald

Moss Landing Harbor is filled with tons of chocolate-brown mud and silt as a result of flooding along the Salinas River.

FLOOD FALLOUT

Photo by Forrest L. Doud of San Luis Obispo
Courtesy of Moss Landing Harbormaster's office

MUDDY HARBOR: Silt from the Salinas River pours into Moss Landing Harbor, settling to the bottom and possibly blocking boats' passage. Harbormaster Larry P. Steffen plans to ask for permission to dredge.

Mr. RIGGS. You used the term "emergency." Have you applied for FEMA disaster assistance?

Mr. STEFFEN. Yes, we have. They have come in and they said, document your costs at this point in time. The photograph that you have before you shows David Packard's research vessel coming into the harbor, and immediately in front of that vessel is 10 feet of water. Should be 15 feet of water, at zero tide. So we have some real problems, siltation problems. Our docks usually have 12 feet underneath them. They have got five feet. There are vessels sitting in mud.

Mr. RIGGS. As you are aware, the House has already passed, and I think the Senate is currently considering, a very large FEMA supplemental appropriation.

Mr. STEFFEN. We sure appreciate that.

Mr. RIGGS. I don't know whether there would be restrictions placed on that funding but should that funding also be approved by the Senate, signed into law by the President, would you be able to access those funds?

Mr. STEFFEN. We would sure—if it came through the Army Corps of Engineers, we would sure apply for it. They are well aware of our problem, too.

Mr. SCHEELER. Next is a gentleman that certainly is no stranger to this committee, Mr. Alex Krygsman, Port Director of the Port of Stockton.

Mr. KRYGSMAN. Mr. Riggs, Chairman Myers, and Mr. Fazio, and even though Mr. Bevill isn't here at the present moment, I want to wish him a happy birthday. I think that was yesterday.

Mr. MYERS. We will tell him.

Mr. KRYGSMAN. Thank you.

I will submit my statement for the record and I have, as a now 18-year tradition, I have brought another colorful publication. I can't break that, even though it was short of time.

Mr. FAZIO. The only sad thing is Hunter Spillian is not here to dump on you for it.

Mr. KRYGSMAN. Well, last year he commented that there was only one picture of—I only had one picture in the publication, so I corrected it this year, into two. And now he is not here.

Mr. MYERS. Well, we will send it to him. We will make sure he gets it.

Mr. KRYGSMAN. Thank you.

I wish to just point in my request for $650,000 for a new navigation study. I know funds are tight, but if you look at the list for California navigation studies, new navigation studies, there are only five. And as you well know, these projects can easily take over 20 years. So actually, if you are not funding this this year, you may delay it in future tightness of funds far more than one more year. So we are talking about construction well in the year, after the year 2000. And I think it needs to get started.

The other two items I want to mention is the support for the City of Stockton and San Juaquin County for that problem with FEMA, with their flood, new flood map. And also the Stockton East Water District not getting any water from the reclamation board and even though they have a contract. And obviously we are in that district and we need drinking water, too, so we wish to support them.

Thank you, Mr. Chairman.

Mr. RIGGS. Thank you.

[The statement of Mr. Krygsman follows:]

Port of Stockton
General Offices: P.O. Box 2089, Stockton, CA 95201-2089
(209) 946-0246 / FAX (209) 465-7244 / TELEX 35-9467

CONGRESS OF THE UNITED STATES

UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUB-COMMITTEE ON ENERGY AND WATER DEVELOPMENT

STATEMENT BEFORE THE ENERGY AND WATER DEVELOPMENT APPROPRIATIONS SUB-COMMITTEE OF THE UNITED STATES HOUSE OF REPRESENTATIVES APPROPRIATIONS COMMITTEE

BEFORE THE HONORABLE JOHN MYERS, CHAIRMAN AND MEMBERS OF THE COMMITTEE

Mr. Chairman:

I am Alexander Krygsman, Port Director of the **Port of Stockton** in Stockton, California.

The San Francisco Bay to Stockton Ship Channels Project is an authorized project, presently under construction.

The **Port of Stockton** is primarily a bulk port that serves industry and agriculture in the San Joaquin Valley in California, and the bulk imports and exports of the Western States, including the coal areas of these States.

The **Port of Stockton** recognized as far back as 1952 that deeper channels would be needed for the movements of bulk cargoes and requested the Corps of Engineers to deepen the channel in 1952. Coal, grain, fertilizers and many other bulk materials require deeper channels to serve the larger bulk carriers.

The Nation needs ports that can handle larger, more economical and more fuel-efficient vessels close to the production areas, both agricultural and industrial, to conserve energy.

The **Port of Stockton** is such a port.

The dredging of the Stockton Channel portion of the project was completed in 1987. A copy of the **Port of Stockton**'s most recent annual report is attached. Cargo volume has increased since the dredging of the Stockton Channel was completed; and the project is certainly paying off.

Therefore, we have requested the Corps of Engineers for a potential new navigation study to deepen the Channel further to forty (40) feet or more, if economically feasible.

For the **1996 fiscal year**, we are requesting six hundred fifty thousand dollars ($650,000) for this study. Because this study has to be coordinated for proper timing with the continuing construction of the John F. Baldwin Channel, no funds were requested for the 1994 fiscal year for the study. However, with the progress of the Baldwin Channel project, now is the time to do this study.

This is not just a new study. This study, and the eventual construction, is closely tied to the John F. Baldwin Channel construction, and this project needs to be timed appropriately with the John F. Baldwin Channel construction. Deferring six hundred fifty thousand dollars ($650,000) now could cost millions in extra cost later.

We urge you to appropriate six hundred fifty thousand dollars ($650,000) for the Stockton Deep Water Channel Recon Report. We also strongly urge that two million dollars ($2,000,000) be appropriated to maintain the channels so that the benefits may continue to accrue.

Respectfully yours,

Alexander Krygsman
Director, Port of Stockton
Stockton, California

AK/yri

Attachment

[illegible]
03/95 Water Hearings

Mr. RIGGS. I am not sure what you mean by new navigation study, though.

Mr. KRYGSMAN. We have asked for a new navigation study. This is the third year we have asked for funding. That is for extra deepening of our channel. And those projects take—our last project took 25 years, and I am hoping it is going to go a little faster. But it takes 20 years by the time you get it completed. So the sooner we start it, the better.

Mr. RIGGS. And is there funding in the President's proposal?

Mr. KRYGSMAN. No, funding is not in the President's budget. Thank you.

Mr. SCHEELER. Bill Lee, Chairman of Port Commission, Santa Cruz Port District, and boat designer and builder.

Mr. LEE. Mr. Chairman, I am very happy to be here today on behalf of the Santa Cruz Port District.

Santa Cruz Harbor is a very, very fine national resource. It is the gateway to the recently designated Monterey Bay Marine National Sanctuary. And that sanctuary, by the way, represents an excellent cooperative Federal and local effort.

We are a small craft harbor. Small craft harbors are economic generators. Funds invested in small craft harbors are job creators, job multipliers, and I have heard the word "deficit reduction" many times today. The most valuable thing for deficit reduction is a person with a job. So we really look forward to continued support.

I would like to—like to also—oh, Congressman Fazio got away. He has been supporting us for the last 10 years that I have been involved in this, and really appreciate his efforts. We have with us another one of our commissioners, Bill Geisrider, from the Santa Cruz Commission, and Brian Foss, our port director.

Mr. FOSS. Good afternoon, Chairman Myers and Mr. Riggs. This committee has heard from the administration that it wishes to lop off support for small harbors and ports. This is truly shallow draft thinking. And it is not necessary.

Mr. RIGGS. That was just to see if we were all still awake.

Mr. FOSS. That is right, it is late. It is not necessary, because partnerships work, and partnering really holds the key to reductions of the Federal deficit in regard to water projects in the future. As an example, this harbor, as Mr. Lee said, joint ventured a dredge in 1986, which now keeps the harbor completely clear and is a successful project, and saves the Federal Government, has saved it $8 million since its inception.

We are proposing today a modification of that formula, $147,000, which is not in the President's budget. That will allow us to extend our partnership agreement to the year 2024, and to completely maintain the Federal channel with port district funds. This will save the Federal Government $850,000 a year through that time. Again, partnerships work.

Mr. RIGGS. Thank you very much.

[The statement of Mr. Foss follows:]

SANTA CRUZ HARBOR
Gateway to the Monterey Bay
National Marine Sanctuary

BEFORE
THE HOUSE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER
HONORABLE JOHN T. MYERS, CHAIRMAN

MARCH 29, 1995

TESTIMONY ON FY '96 APPROPRIATION

FOR CORPS OF ENGINEERS C & M FUNDING FOR SANTA CRUZ HARBOR ENTRANCE $147,000

PRESENTED BY
BRIAN E. FOSS
PORT DIRECTOR
ON BEHALF OF THE
SANTA CRUZ PORT DISTRICT COMMISSION

Santa Cruz Port District
135 5th Ave., Santa Cruz, CA 95062   (408) 475-6161   FAX: (408) 475-9558

BACKGROUND:

In 1986, the Secretary and the Santa Cruz Port District joint-ventured a dredging system for Santa Cruz Small Craft Harbor. It now serves marine commerce and contributes to California's economic recovery. This partnership has been an enormous success and has made the harbor the year-round, all-weather, regional facility it was envisioned to be.

However, the existing system deserves several modifications:

- It is in force only to 2014, which is far short of the system's life;
- It is costly beyond the intent of the 1958 enabling legislation, and the 1986 Cooperative Agreement between the Port District and the Army.

We believe this is an oversight. The Port District, therefore, has proposed to Assistant Secretary of the Army for Public Works, Hon. John Zirschky, that the financial equities be changed. For your advice, a complete proposal document is attached. In exchange, the Port District is prepared to extend its commitment to continue to execute the federal O & M mission to 2024.

In this period of restricted federal and local resources, it is important to demonstrate what can be accomplished with federal/local partnering. This joint-venture has been a marquee federal budgetary reduction project. It needs only refinement to push it out to 2024.

APPROPRIATION REQUEST:

In anticipation of a change in the cost share formula, the Port District requests that the Committee appropriate $147,000 as the federal share of the 1996 dredging operation costs of maintaining the Santa Cruz harbor entrance.

A complete justification for the cost share formula change follows.

HISTORY OF THE SANTA CRUZ SMALL CRAFT HARBOR FEDERAL PROJECT

Santa Cruz Small Craft Harbor was enabled as a federal project by 1958 legislative act (HD 357). Construction was completed in 1964. Today the harbor accommodates 1,200 recreational and commercial boats, as well as 20,000 visiting boats annually.

Major shoaling problems have plagued the entrance since its inception. Over 200,000 cubic yards of sand must be cleared from the entrance each year. Prior to 1986, entrance dredging was done at federal expense, by contract. This system was expensive and the product unacceptable. The contract was let in the spring of each year and the harbor was made useable and safe only after three to four months of dangerously shoaled conditions.

The contract cost to the federal government was enormous -- over $1 million in the final year of contract dredging (1985). The cost to the public was hundreds of lost recreational and commercial user days and hundreds of boating accidents, including three fatalities. In addition, Port District and U. S. Coast Guard patrol vessels were prevented from delivering needed rescue services to Monterey Bay users.

The problem was readdressed in 1984, when Congress, the U. S. Army Corps of Engineers, and the Santa Cruz Port District agreed to joint-venture a dredging system with the Port District taking operational responsibility. The cost-sharing formula was extrapolated from the 1958 House Document language, which took no account of inflation and which greatly underestimated the volume of the shoaling problem. The 1984 Water Resource Development Act set forth the basic terms of the joint venture.

BYPASS IMPLEMENTATION

The dredging system was implemented in the fall of 1986. The Port District has operated the system since that time with extraordinary success. The dredge "Seabright," and attendant system, have kept the entrance open and useable continuously since November, 1986. This joint-venture is a shining example of what a federal / local partnership can accomplish. What was previously a crippled project; a liability; and an embarrassment to all parties, is now a model success story.

The 1984 Water Resources Development Act also authorized a study of the Santa Cruz entrance to determine if the 200,000 cubic yards of sand entering the harbor each year could be mitigated so that dredging time and effort could be reduced.

1992 RECONNAISSANCE STUDY

The reconnaissance study was completed in 1992. It concluded that there was no cost effective means to significantly improve on the current "Seabright" dredge system, or to reduce the 200,000 cubic yards of material entering the harbor. This was disappointing to the Port District because the cost of dredging, $548,000+ per year, is quite burdensome to the Port District's small financial resources.

Armed with knowledge that the current system is operationally effective, and that it is the only foreseeable solution, the Port District proposes that the Cooperative Agreement be made more equitable and then extended to 2024.

NEW COST SHARING FORMULA

The 1958 House Document 357 estimated the littoral drift at between 30,000 cubic yards of sand and 300,000 cubic yards of sand. In reality the drift is 400,000 cubic yards. The House Document set the general and bypass capital cost sharing formula at:

Federal share	64.9%
Local share	35.1%

The federal share of the yearly operating cost was $31,000 (1956 dollars). In the 1986 Cooperative Agreement the $31,000+ was brought forward and capitalized, giving the Port District $389,662 to help with its share of the system capital costs.

Actual system cost $2.7 million	
Federal share 64.9% =	$1,752.300
Plus present value of $35,000 1984-2014 =	$ 389,662
Local share 35.1% =	$ 606,390
	$2,748,352

This valuing of the $31,000 is the crux of the injustice that was unwittingly done. In 1958, $31,000 was meant to be a "significant" portion of the yearly cost. This is acknowledged in pages 32 and 33 of House Document 357.

> *"In lieu of maintenance of the dredged general navigation channels, the United States would contribute a maximum of $31,000 annually as the federal share of the cost of the bypassing system. The sum of $31,000 represents the estimated annual cost of maintenance of the navigation channels for a littoral transport rate averaging 25,000 cubic yards annually."*

The $31,000 represented 100% of 25,000 cubic yards dredged at $1.24/yard. The 25,000 cubic yards is some eight times less than the actual 200,000+ yards being dredged yearly.

The point that the Port District stresses is one of equity in bringing the $31,000 yearly federal contribution to a current value. In doing so, this would make the federal share $181,629, less the already contributed $35,000/year = $146,629.

This would result in a local/federal cost share of:

Federal share	$146,629
Local share	$401,921

Current dredging budget	$548,550

This is still an extraordinary program for the federal government. It is much less than the historical cost share for the entire project (federal 64.9%/local 35.1%). It continues to save the federal government approximately $850,000/year in dredging costs. This would be $25.5 million to 2024 (in current dollars).

CONCLUSION

The conclusions of the 1992 Reconnaissance Study have put the harbor dredging program in a new light. The Port District accepts the conclusion that mechanical dredging is the only assured solution. The current system is effective, but very costly. The Port is willing to extend its commitment as local sponsor and to insure the longevity of the federal project. In exchange, the Port needs a more equitable cost share. An inflation index to the original partnership concept is a logical and reasonable proposal.

BENEFITS OF THIS PROPOSAL

- It continues a system which has created a safe, all year-round, all-weather, regional harbor.

- Is a model of what federal / local partnering can accomplish.

- Even after the new cost share arrangement, it continues to save the federal government approximately $850,000 per year. (Total estimate 1995-2024 = $25.5 million)

- It extends the life and insures sponsorship of the project to 2024. (No guidance exists for sponsorship after 2014)

- The Port District provides all maintenance, up-keep and replacement of the system to 2024.

- New financial formula allows the Port District to take on extended responsibility.

ATTACHMENT #1

Santa Cruz Port District / U. S. Corps of Engineers Cooperative Dredging Agreement

Proposed Cost Share Formula Detail

Federal Contribution:

1956 dollars	$ 31,000
Dept. of Labor Statistics Index,[1] 1956 dollars to 10/1/94	X 5.859
Current dollar amount	$181,629
LESS value of capitalized contribution as per 1986 Cooperative Agreement to 2014[2]	$ -35,000[3]
	$146,629[4]

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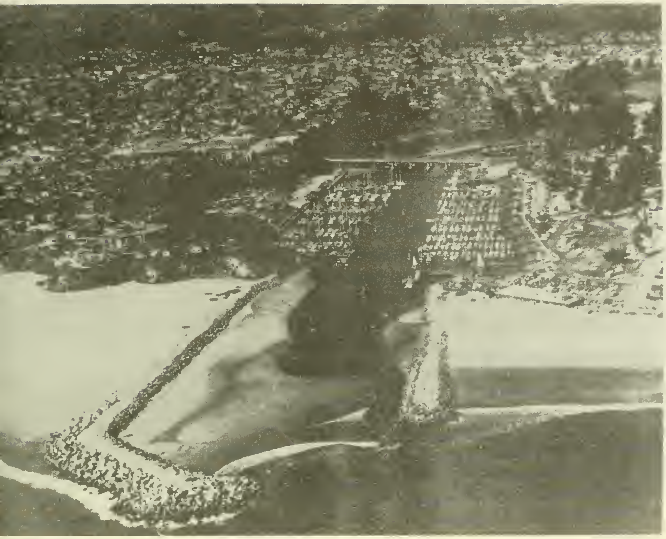
1. CPI-U SF/OAK/SJ Index = 1956 = 25.5 = $31,000; 1994 = 149.4 = $181,629
2. After 2014, amount would no longer be discounted for capital value of $35,000
3. H.D. 357 used $31,000 as the federal contribution. The 1986 Cooperative Agreement used $35,000
4. Value should continue to be indexed for inflation for life of project.



Santa Cruz Harbor - February, 1976

Santa Cruz Harbor in shoaled condition prior to U. S. Corps of Engineers contract.

Santa Cruz Harbor Entrance - 1983

Sailboat about to "experience" Santa Cruz Harbor entrance. Winter shoaling of the entrance causes ocean waves to break clear across the navigation channel.

Santa Cruz Harbor Entrance - 1992

Dredge “Seabright” working 40-hour weeks from November to April,
keeping the federal channel at design depth.
Note breaking surf over west jetty while entrance
remains flat and calm.

Mr. SCHEELER. I think it is helpful to point out that the administration's proposal to change the Corps' mission isn't just in the area of flood control, that they are also proposing a very significant policy change with respect to recreational harbor maintenance.

Mr. FOSS. Very much, 500 harbors.

Mr. RIGGS. You are a very important reminder to this subcommittee.

Mr. SCHEELER. Richard Parsons, General Manager, Ventura Port District.

Mr. PARSONS. Mr. Chairman, Members of the committee, first I want to thank you for this committee's past support of Ventura Harbor. In August of this year, we completed a $7.5 million cost share project. Emphasizing Brian's words, that cost-sharing does work. The project was completed in August of this year, and the harbor entrance at Ventura is now a much safer harbor entrance.

I do want to pick up on the Chairman's comments about recreational harbors, however. Many of these harbors on the California coast are not purely recreational. The Federal interest in our harbor is justified by the commercial fishing industry and offshore oil boats that work out of the harbor.

Secondly, I would like to request the committee's support of the President's request for $2.288 million in the President's budget for the maintenance dredging in the coming year of the harbor.

And then finally, I would like to make a little testimonial here for the Corps. At a time when I realize their civil works program is under attack, I think the committee ought to know of the Corps' performance in the recent winter storms, at least as it related to Ventura Harbor.

On the night of Sunday, January 22nd, we were hit with 50-year waves, 22 feet in height, which severely damaged our breakwater. The Corps had personnel on site the next day. That was Monday. By Friday, they had a complete set of plans and specs prepared and went to bid. The next Monday, the bids were opened and by the following Wednesday, the bid was awarded. By Sunday night, the dredging equipment and contractor equipment were on site. So within two weeks, repairs were underway.

Repairs will be finished this week. And I think a organization within the Federal Government that can make a response like that should be touted and pointed to as what government can and should do. And they shouldn't be talking about cutting the program, I don't think.

Thank you.

[The statement of Mr. Parsons follows:]

TESTIMONY
of the
VENTURA PORT DISTRICT
Before The
SUBCOMMITTEE ON ENERGY & WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS

First Session - 104th Congress
March 29, 1995

The Ventura Port District respectfully requests that the Congress:

> Support the Army Corps of Engineers FY 95 Civil Works Budget request of $2,288,000 for the maintenance dredging of the harbor's entrance channel and sand traps.

BACKGROUND

Ventura Harbor is located along the Southern California coastline in the City of San Buenaventura, approximately 60 miles northwest of the City of Los Angeles. The harbor opened in 1963. Annual dredging of the harbor entrance area is usually necessary in order to assure a navigationally adequate channel. In 1968, the 90th Congress made the harbor a Federal project and committed the U.S. Army Corps of Engineers to provide maintenance dredging and a solution to the entrance shoaling problem. A detached breakwater and sand trap area, completed by the Corps of Engineers in 1972, alleviated some of the more damaging difficulties but continuing navigational problems persisted. To remedy those problems a cost shared $7,500,000 navigation project modifying the harbor entrance structures was completed by the Corps of Engineers in August of 1994.

The harbor presently generates more than $30 million in gross receipts annually. That of course translates into thousands of both direct and indirect jobs. A significant portion of those jobs are associated with the commercial fishing industry and with vessels serving the offshore oil industry. Additionally, the headquarters for the Channel Islands National Park is located within the harbor, and the only commercial vessels transporting the nearly 100,000 visitors per year to and from the Park islands offshore operate out of the harbor. All of the operations of the harbor, particularly those related to commercial fishing, the support boats for the oil industry, and the visitor transport vessels for the Channel Islands National Park are highly dependent upon a navigationally adequate entrance to the harbor.

OPERATIONS & MAINTENANCE NEEDS

Dredging

The Corps of Engineers has determined that $2,288,000 will be required to perform the routine maintenance dredging of the harbor's entrance channel and sand traps during FY 96. This dredging work is absolutely essential to the continued operation of the harbor. After performance of the FY 96 dredging it is anticipated that the completion of the cost shared navigation improvement project by the Corps of Engineers will enable future dredging to be placed on a biennial cycle.

Richard W. Parsons
General Manager
Ventura Port District

Mr. RIGGS. Thank you, Mr. Parsons. I am assuming that was the South Pacific——

Mr. PARSONS. It is the L.A. district, under South Pacific Division, yes, sir.

Mr. RIGGS. And I would take that as a tribute to the very able leadership of General Scott.

Mr. PARSONS. And Colonel Robinson.

Mr. RIGGS. Absolutely, the good people he has working under him. I was going to ask you if the Ventura wharf is still there.

Mr. PARSONS. It is. It suffered some damage, but it is still there.

Mr. SCHEELER. Peter Wilson, Assistant City Administrator, City of Santa Barbara.

Mr. WILSON. Mr. Chairman, once again, Santa Barbara has two projects of interest this year for the U.S. Army Corps of Engineers. First is our annual dredging of the Federal navigation channel in Santa Barbara Harbor. Our need is for $1.6 million. The President's budget currently provides for $1 million. Our harbor will close without annual maintenance dredging.

We generate $43 million in commerce through that harbor. We support commercial fishing, other commercial vessels including oil cleanup vessels for the oil rigs in the area. The United States Coast Guard cutter Point Camden is stationed there. The National Oceanic and Atmospheric Administration program for the Channel Islands Marine Sanctuary runs out of our harbor. And we are the harbor for a thousand vessels.

Our second project, Mr. Chairman, is supported in the President's budget, that is for dredge acquisition. The Corps is currently projecting to build a dredge for Santa Barbara Harbor, much like they did for Santa Cruz. Santa Barbara would then assume 100 percent of the Corps' mission to dredge the Federal navigation channel in our harbor, and we would pay for that ourselves.

In return, we would request that hopefully the Corps would fund 100 percent of the acquisition price of the dredge itself. The President's budget provides $50,000. That is what we need this year to complete the design process for the dredge effort.

Thank you very much for the opportunity to speak before you again.

Mr. RIGGS. Thank you, Mr. Wilson. We have to maintain the Mediterranean of California.

[The statement of Mr. Wilson follows:]

BEFORE

UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

THE HONORABLE JOHN MYERS, CHAIRMAN

HEARINGS ON

FY 1996 ENERGY & WATER APPROPRIATION

WASHINGTON, D.C.

PRESENTED BY
MR. PETER K. WILSON

ASSISTANT CITY ADMINISTRATOR/
WATERFRONT DIRECTOR

ON BEHALF OF THE CITY COUNCIL OF THE
CITY OF SANTA BARBARA

MARCH 29, 1995

ISSUE

Funding appropriations provided for the City of Santa Barbara in the Water Resources Development Act of 1995 for:

- Maintenance dredging of the Federal navigation channel in Santa Barbara Harbor by the U. S. Army Corps Of Engineers. Funding of $1,600,000.
- Continue preconstruction engineering and design work for the Santa Barbara Harbor Dredge Acquisition Project. Funding of $50,000.

Testimony earlier this year before the United States Senate Subcommittee on Transportation and Infrastructure of the Committee On Environment and Public Works stated:

> " the Army will discontinue Federal maintenance of harbors that do not generate significant commercial navigation activity and, therefore, do not produce contributions to the Harbor Maintenance Trust Fund."

The City of Santa Barbara Harbor is on the list of harbors for discontinuance of maintenance dredging. Such a drastic change in Federal water resources policy threatens the continued maintenance of the majority of California's twenty-odd small ports and harbors, that collectively serve tens of thousands of Californians, contribute millions of dollars to the State's economy, provide harbors of safe refuge for navigators along California's thousand mile coastline, and provide the backbone to the State's world renowned marine recreation and tourism industry.

BACKGROUND

Section 114 of the River and Harbor Act of 1970 transferred the responsibility for maintaining navigation channels at Santa Barbara Harbor to the Federal Government.

Santa Barbara Harbor is located 90 miles northwest of Los Angeles. The next harbor to the south is Channel Islands Harbor, 25 miles away. The next harbors to the north are Port San Luis and Morro Bay, about 100 miles away. There are no other safe harbors between these two points. The Channel Islands are approximately 23 miles due west.

SANTA BARBARA HARBOR ACTIVITIES

A number of Federal Agencies and missions are supported out of Santa Barbara Harbor:

- U.S. Coast Guard Cutter Point Camden, 82-foot vessel is based at Santa Barbara and provides Coast Guard operations from Santa Barbara, to the Channel Islands, to Morro Bay. The United States Navy mandated that the Coast Guard receive free and perpetual quarters in Santa Barbara, when the Navy transferred the Naval Reserve Center Building to the City.

- National Oceanic and Atmospheric Administration (NOAA) supports the Channel Islands Marine Sanctuary through it's base in Santa Barbara Harbor.

- The National Parks Service is interested in maintaining a Visitors Information Center for the Channel Islands National Parks at Santa Barbara Harbor.

Commercial fishing:

- There are about 157 commercial fishing vessels in Santa Barbara Harbor. Commercial fishermen land about 10,900,000 pounds of fish, valued at $14,600,000.

Other Commercial and Government Vessels:

- There are about 60 other commercial vessels used for oil platform firefighting and oil spill cleanup, research, sightseeing, underwater diving, towing and salvage, charter and consultant activities.

Recreation Boating:

- There are about 864 slips used for recreation boating.

Commercial operations:

- Commercial ocean dependent uses, commercial harbor operations, wharf operations, restaurants and offices provide and additional 13,700,000 pounds of commerce, valued at $28,900,000.

Total annual value of commerce in Santa Barbara Harbor is $43,500,000.

CONCLUSION

Funding for the City of Santa Barbara, through the Water Resources Development Act of 1995, is imperative for the continued economic vitality of our municipality, is the basic underpinning of the revitalization of the Santa Barbara waterfront area, and fundamental to the support of California's number one industry, tourism.

In order to support the Federal mission of maintaining the design depth in the Federal navigational channel in Santa Barbara Harbor an appropriation of $1,600,000 is necessary.

Efforts are under way to have the City of Santa Barbara assume 100% of the Federal mission of maintaining the navigational channel on the condition that the U.S. Army Corps Of Engineers provide a dredge system to the City. In return the U.S. Army Corps Of Engineers would construct a dredge for the City of Santa Barbara.

This action is being predicated on the success of a similar dredge acquisition project for the Santa Cruz, California Port District, that has since generated cumulative savings to appropriations in the Federal Energy and Water Development budget of $8,000,000. Hopefully, in return for the City assuming 100% responsibility for dredging the U.S. Army Corps Of Engineers would pay for 100% of the dredge system acquisition expense.

Currently, an appropriation of $50,000 is necessary to continue the dredge design efforts already in progress.

Thank you for the privilege and opportunity to present the Federal navigational channel dredging needs of the City of Santa Barbara Harbor to your honorable committee.

Mr. SCHEELER. Roberta Goulart, Executive Director, Contra Costa County Water Agency.

Ms. GOULART. Mr. Chairman, subcommittee Members, I am Roberta Goulart, executive officer of the Contra Costa County Water Agency. I am here today to support the $800,000 currently in the President's budget for the San Francisco to Stockton, which is also known as the Baldwin Ship Channel Deepening project. Contra Costa County is the local sponsor for the project.

This is the final phase, one of the largest projects on the West Coast, if not the largest. And we need your help to construct and complete it. There are a number of good reasons for doing this. Among them, a true benefit to the Bay Area economy and a reduction or elimination of crude oil off-loading in San Francisco Bay.

I have additional testimony that in the interest of time I won't present, but I have a lot of information should you desire it. I just have a few words I want you to remember. San Francisco to Stockton ship channel, or Baldwin ship channel.

Thank you.

[The statement of Ms. Goulart follows:]

Before:

U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON ENERGY AND WATER

HONORABLE JOHN MYERS, CHAIRMAN

MARCH 29, 1995

Testimony on:

FY 1996 CIVIL WORKS APPROPRIATIONS SAN FRANCISCO-TO-STOCKTON (J.F. BALDWIN) SHIP CHANNEL PROJECT, PHASE III

Presented by:

ROBERTA GOULART

EXECUTIVE OFFICER, COUNTY WATER AGENCY

for the

CONTRA COSTA COUNTY BOARD OF SUPERVISORS

March 29, 1995

In Washington D.C.

Mr. Chairman and Members of this distinguished Subcommittee:

Contra Costa County is pleased to support deepening of the third and final phase of the San Francisco-to-Stockton Ship Channel Project, otherwise known as the J.F. Baldwin Ship Channel. Deepening of this channel segment will provide greater shipping efficiency, improve tanker safety considerations and will make shipping more economical for the many industries which utilize this waterway. This project extends from San Francisco Bay, into the Sacramento-San Joaquin Delta area.

Currently, many existing vessels which navigate this waterway do so by awaiting favorable tides, arriving only partially loaded, or by off-loading (lightering) crude oil and/or petroleum products in deeper areas of the bay.

Channel deepening of this section enables major oil company refineries to continue economically feasible operations within Contra Costa County. Oil companies are looking toward completion of this project as they commit hundreds of millions of dollars toward modification of manufacturing facilities as part of federal and state mandated clean fuel requirements. In addition, channel deepening will allow more efficient transport by full loading of existing (and perhaps larger) vessels, resulting in some reduction in air quality impacts, as well as the above-mentioned safety considerations.

Contra Costa County, as local sponsor for the project, believes that the $800,000 contained in the President's Fiscal Year 1996 Budget is adequate for Army Corps of Engineers accomplishment of scheduled tasks for this fiscal year. Our request at this time is for funding to be maintained at this level.

It is becoming increasingly important to work toward completion of this project in the short-term. Continued delay could further cripple a struggling economy which otherwise would be aided by this project. Some of the issues encountered by the Port of Oakland are fundamental components of this project as well, illustrating the importance of working through environmental considerations to expedite dredging activities in San Francisco Bay.

Thank you for your time and your continued support of this project.

Mr. SCHEELER. Gregory Woodell, planning specialist, Los Angeles County, and President of the American Shore and Beach Preservation Association.

Mr. WOODELL. Mr. Chairman, as you know, Los Angeles County is the largest urban county in the country. And it hosts several compelling water-related projects under jurisdiction of the Corps of Engineers.

Marina Del Rey is the largest man-made marina in the world. It hosts the air-sea rescue vessel team that responds to ocean aviation emergencies that may occur at Los Angeles International Airport. The marina entrance channel and breakwater system must be maintained, free of shoaling.

The county thanks the subcommittee for its O&M appropriations in fiscal year 1995, to execute emergency entrance dredging last year and the year before. However, recent storms have again almost closed the channel and $1.7 million is requested this year as an emergency action. However, an additional $200,000 is needed to complete a reconnaissance study and initiate a feasibility study for a redesign of the Federal entrance and protection from adjacent flood control channel debris.

In addition, Mr. Chairman, another $200,000 is needed to continue the Malibu Coastal Shoreline Protection Study to attack the overall problem of Pacific storms hitting the Los Angeles County coastline, which for example caused the problem at the entrance of Marina Del Rey.

Finally, Mr. Chairman, $1 million is recommended for Southern California Regional Dredge Material Contaminated Disposal study for Los Angeles and Orange County, so as to consolidate the entire Southern California need for Corps disposal actions.

Again, we appreciate the patient attention of the subcommittee to county energy and water appropriation needs.

Thank you.

Mr. RIGGS. Thank you. Obviously Los Angeles County has unique needs due to its size and amount of coastline.

[The statement of Mr. Woodell follows:]

COUNTY OF LOS ANGELES
DEPARTMENT OF BEACHES AND HARBORS

STAN WISNIEWSKI
DIRECTOR

JUDITH KENDALL
DEPUTY DIRECTOR

March 22, 1995

Honorable John Myers, Chairman
Energy and Water Development Subcommittee
House Committee on Appropriations
2320 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Myers:

FY 1996 FUNDING FOR SHORELINE PROTECTION STUDY, MARINA DEL REY DREDGING AND NAVIGATION STUDY

The Los Angeles County Board of Supervisors respectfully requests The Congress of the United States to include funds in FY 1996 Energy & Water appropriations for the following three projects urgently required to preserve, restore and maintain vital and precious public purpose assets, the 75 mile shoreline of Los Angeles County and the recreational boating harbor at Marina del Rey.

Malibu Coastal Area Shoreline Protection Study
($200,000)

The winter storms in 1983, 1988 1991 and 1995 caused extensive damage to the Los Angeles County coastline. In 1982-83 and 1988 the El Nino phenomena directly hit the Los Angeles County coast with unusually high tides and caused widespread damage to beaches and shoreline facilities estimated at over $20 million. While much of the sand has returned to the County's beaches and they appear to be significantly restored, the beaches remain extremely vulnerable to future storms. Healthy beaches are necessary, natural buffers to protect public facilities from the unpredictable forces of the ocean.

We respectfully request your support for funding of $200,000 included in the President's FY 1996 budget recommendation to continue the feasibility study to develop a Federal project for shoreline protection at those points within Santa Monica Bay that are most vulnerable to future storm attack. Because Los Angeles County has one of the most heavily urbanized and developed shorelines in the country, it is extremely important to fund and complete this study to help prevent future damage to significant public investments in shoreline facilities.

TELECOPIER (310) 821-6345
(310) 305-9503 13837 FIJI WAY MARINA DEL REY, CALIFORNIA 90292

Marina del Rey Entrance Channel Dredging
($1,700,000)

The U.S. Army Corps of Engineers is responsible for maintenance dredging of the Marina del Rey entrance channel pursuant to perpetual right of way easement. This is to occur approximately every four years or as storm events dictate. The last dredging took place in 1994 (FY95). However, only about 10% of the shoaling was removed.

Historically, in FY94, $1.8 million was available for maintenance dredging. Because of environmental complexities, dredging did not take place that year and the funds were reallocated to other Corps projects. In FY95, Congress added $1,758,000 to the Corps' Operations & Maintenance General funds to dredge Marina del Rey. An additional $3,550,858 was reprogrammed into the Marina del Rey project from other Corps projects. Thus, a total of $5,308,858 was available to dredge the Marina's entrance channels. Dredging was completed in December 1994. Navigation restrictions to the entrance have returned since dredging was completed as a result of the severe storm events experienced by Southern California during the month of January 1995. These restrictions on navigation are threatening the ability of the U.S. Coast Guard, County Sheriff, Fire Department and Lifeguards to respond to emergencies. As these agencies form critical core of the LAX Air-Sea Disaster Response Team, it is imperative that the Marina's entrance channel remain open and safely navigable.

There are no funds in the President's FY 1996 budget to conduct maintenance activities within the Marina. However, we request your support to provide an additional $1.7 million in FY 1996 to redredge the recently deposited sediments within the entrance channels.

Marina del Rey Harbor Navigation Study
($200,000)

Shoaling of the Marina's navigation channel due in part to sediment from the Ballona Creek Flood Control channel is making channel navigation difficult, and has increased the potential for boating accidents. Additionally, contaminants in Ballona Creek sediments create serious difficulties in disposing of the dredged material. Modifications to the existing federal project, including relocation of the Ballona Creek Flood Control outlet, a containment area for disposal of contaminated material and other remediation alternatives are being investigated in the ongoing reconnaissance study. We request you support the $200,000 included in the President's FY 1996 Budget to complete the reconnaissance study.

The County is aware of the cost-sharing requirements for Corps' feasibility studies, and is able and willing to share costs subject to review of the reconnaissance study results and consideration of county budget priorities at that time.

Every year there are growing demands and shrinking resources, making the allocation of these resources a difficult task. I trust your Committee will recognize the high priority associated with the projects discussed in this letter to protect major public and private shoreline facilities and developments.

Very truly yours,

Stan Wisniewski, Director

SW:cec

MARINA DEL REY FACT SHEET

PUBLIC RECREATION/EDUCATIONAL FACILITIES

Burton W. Chace Park; Admiralty Park; Mother's Beach; regattas, crew races, boat parades, sailing races, park concerts, harbor cruises; handicapped swim ramps, children's playground, boat rentals and sailing instruction, bicycle path (part of 20-mile coastal path), north jetty promenade and view piers, vista points, fishing docks, Marina Information Center, County Library with large nautical section.

BOATING FACILITIES

6,100 boatslips, beach launching areas for hand-carried or RV-transported boats, sailing lagoon, dry storage for boats, yacht clubs, repair yards, fuel dock & pump-out station, live bait, charters, transient boat docks, boat sales and brokerages.

CIVIC CONTRIBUTION/ECONOMIC IMPACT

Community with current population of 10,000; more than 200 individual businesses provide 6,000-8,000 jobs; taxes generated by leases provide significant tax revenue for County, City schools, special districts, etc; direct freeway access via Marina Freeway (Route 90).

MARINA ENVIRONMENTAL STATISTICS

804-acre site (403 water, 401 land); 2,340 feet off-shore breakwater; 2 miles main channel (1,000 feet wide), 3 miles side basins (600 feet wide), 8 miles concrete bulkhead; 6 miles landscaped roadways, all utilities underground.

PROVIDE DEVELOPMENT OF FACILITIES

4 hotels, 2 motels, 16 apartment complexes, 26 restaurants, 7 yacht clubs, 12 commercial office buildings.

PUBLIC DEVELOPMENT OF MARINA

Federal:	50% of Main Navigational Features	$ 4,600,000
State:	Site Acquisitions Loan	2,000,000
County:	Land Acquisition; 50% of Main Navigational Features	15,875,000
County Motor Vehicle Fund:	Perimeter Roads	775,000
Bond Issue:	Site Preparation	13,000,000
Total Initial Cost:		**$36,250,000**

INCOME

Revenue from leases (approximately $21.4 million annually) pays operating expenses; provides for replacement and improvements.

MARINA DEL REY, CALIFORNIA

Just as the natural ebb and flow of the powerful seas are constantly influencing our coastlines, the dynamics of how Marina del Rey came to be were also under another type of surge, only these forces were man-made. Political and financial forces were the main influences that shaped the physical development of the Marina as it exists today.

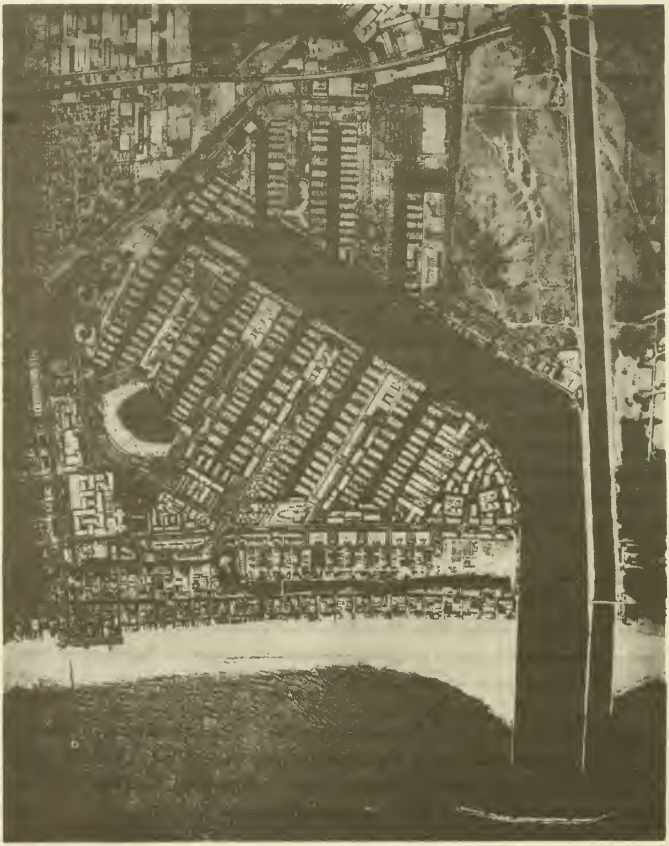
During the mid-1950s, the public was unwilling to support a small craft harbor, which seemed to benefit only a select segment of the overall recreational community, and limited Federal and County funds were available for a recreational marina/regional park. In order to insure financial success, planning efforts and policies were redirected to allow the private sector to lease land parcels with a new marina configuration. The new basin design, which was more sensitive to existing surrounding land uses, infrastructure and vehicular traffic patterns, transformed the Marina from a small craft harbor into a well-organized, successful residential-commercial-recreational urban marina, serving a metropolitan population of over seven million people.

Throughout the planning and design process, special care was given to identifying and parceling land to provide opportunities for public access in order to balance boating and non-boating uses and equitably account for the Marina's impact upon the needs of adjacent communities. In order to ensure quality and compatibility of Marina developments, the County appointed a local Design Control Board to establish Marina del Rey architectural design standards and landscape guidelines, and to govern a review and approval process for any new projects to be built. Leases were designated to be sixty years, with terms beginning to expire in the year 2020.

As the Marina heads into the next century, considerations for future planning and design are underway. Marina del Rey will never be thought of as a finished product, but instead as a constantly evolving Marina "new town" with an inherent capacity to accept change. Currently, the County continues to strive for an optimum balance between public and private interests, as economic and recreational needs reinforce the Marina's role as a multi-functional activity center for the Los Angeles metropolitan area.

In the near future, public users will need additional Marina facilities, such as the development of new parks and commercial areas designed to serve tourists, local visitors and residents. Also, specialized, more permanent users who desire to live, work, shop and enjoy recreation in a marine environment will require more professional services and facilities tailored to their needs. These challenges can be met.

Today, Marina del Rey is an indispensable social, environmental and economic success, and has become a role model for other urban marinas throughout the world.



MARINA DEL REY, CA

Mr. SCHEELER. Dan Allen, Chief Harbor Engineer, Port of Long Beach.

Mr. ALLEN. Mr. Chairman, Chairman Myers, it is a privilege to be here before you again. I know I don't need to tell this committee the national significance of the Port of Long Beach, but I do want to point out that we are currently becoming the largest container port in the United States, thanks to our neck and neck rivalry with the Port of Los Angeles here. And we are also in the L.A. Customs District, the largest customs district for import-export in the United States.

I have submitted a statement for the record. Congressman Horn was here earlier to adequately describe our project, so I won't take any more of your time. Appreciate the time that you spend with us. Thank you.

Mr. RIGGS. Thank you.

[The statement of Mr. Allen follows:]

TESTIMONY OF E. D. ALLEN
CHIEF HARBOR ENGINEER FOR THE PORT OF LONG BEACH
ON BEHALF OF THE
LONG BEACH BOARD OF HARBOR COMMISSIONERS
BEFORE
CONGRESSIONAL ENERGY AND WATER DEVELOPMENT SUBCOMMITTEES
WASHINGTON, D.C.
March 29, 1995

I am E. D. Allen, Chief Harbor Engineer for the Port of Long Beach, California. I have been authorized by the Board of Harbor Commissioners of the City of Long Beach to represent the Port of Long Beach in regard to appropriations for the Los Angeles and Long Beach Harbors Model Study; Planning, Engineering, and Design and Construction for the 2020 Plan; Los Angeles River maintenance dredging; and a Reconnaissance Study for beach erosion.

Harbors Model Maintenance

The Water Resources Development Act of 1976, Section 123, authorized the Chief of Engineers to operate and maintain the Los Angeles-Long Beach Harbor Hydraulic Model at the U. S. Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi as part of the Los Angeles and Long Beach Harbors Model Study. This model encompasses both port complexes in San Pedro Bay which are ports of national significance. The hydraulic model, along with several numeric models, provides state-of-the-art methodology that can be used on the San Pedro Bay ports and on many other harbor complexes. In addition, the Port, as the local agency, is assisting in the Corps' effort to provide continuous wave-gauge data by providing necessary support personnel and equipment for the maintenance of the portions of the system located at the Port.

In fiscal year 1995, $156,000 was appropriated for maintenance of the physical model of San Pedro Bay. During this time, the Port also utilized the model to analyze necessary navigation-related modifications to the recently completed portion of our expansion plan. It is necessary that the model remain ready for service such as this. Funding in fiscal year 1996, in the amount of $160,000, would continue annual maintenance on the model. Therefore, Congress is respectfully requested to appropriate $160,000 for fiscal year 1996 to perform this work.

2020 Plan - Channel Dredging (Planning, Engineering, and Design)

The Port of Long Beach has developed a long-range master plan, referred to as the 2020 Plan, which demonstrates the need for new navigation channels and additional landfill development through the year 2020. In fiscal year 1995 $1,500,000 was appropriated to do a feasibility study of channel deepening outside the federal breakwater.

Section 201(b) of the Water Resources Development Act of 1986 authorized construction of the 2020 Plan upon recommendations of a feasibility report and completion of a favorable Chief of Engineers Report.

The Port of Long Beach has started the first phase of the 2020 Plan with the construction of its Pier J expansion project, which includes dredging the Long Beach Main Channel to at least a -76′ depth. Together with the approach channel deepening outside the federal breakwater, the dredging is being evaluated for Federal interest in the feasibility study because it permits deeper draft crude petroleum vessels to call at the Port of Long Beach.

The feasibility study for completion of the Long Beach portion of the 2020 Plan will be completed by December 1995. The next step is to proceed to the actual Planning, Engineering, and Design (PED) Phase. Therefore, it is urged that the Committee approve an appropriation of $750,000 for fiscal year 1996 to complete the PED designs, plans, and specifications for the Long Beach portion of the 2020 Plan. This will allow for construction to begin in 1997.

2020 Plan - Wave Gage Data Acquisition (Construction)

The Port of Long Beach also concurs with and supports the recommendation of the California Marine Affairs and Navigation Conference (C-MANC) and the Port of Los Angeles on continued federal funding of the wave gage (prototype) data acquisition and analysis program. This program began in 1987 to develop data for the design of the 2020 Plan port expansion and navigation improvements. This program has now evolved to construction monitoring and model verification which needs to continue in order to confirm expected levels of impacts of the expansion plans. It is therefore requested that $325,000 for fiscal year 1996 be provided to sustain this needed program.

Los Angeles River Maintenance Dredging

The Port of Long Beach also concurs with and supports the recommendation of C-MANC and the City of Long Beach on federal funding for remedial maintenance dredging to remove accumulated flood-deposited silt in the mouth of the Los Angeles River. During the recent storms of the winter of 1995, such flood-deposited silt closed the mouth of the Los Angeles River to navigation. This restricted regularly scheduled water route transportation between the cities of Long Beach and Avalon, creating an economic emergency. Reacting to this emergency, the U. S. Army Corps of Engineers cleared the channel enough to allow for minimal resumption of navigation.

However, substantial quantities of silt remain in the channel, much of which is just upstream of the recently reopened section. These silt deposits create the likelihood of future serious restrictions and safety hazards to commercial and recreational boating activity in, and adjacent to, the Long Beach Harbor District and the associated businesses in Long Beach. Such restrictions and hazards have resulted in accidents and litigation.

In addition, the Port supports the City in recommending these silt deposits be removed on an annual basis as a scheduled work item. As was demonstrated this year, the location of the silt can move dramatically within a few days. The U. S. Army Corps was studying this problem when the recent emergency occurred. In "Project Plan for Los Angeles River Estuary Maintenance Dredging, Long Beach, CA, October 1994" (Project Plan-1994), the Corps of Engineers estimated an average annual deposit of silt in the estuary of 485,000 cubic yards. The rate of such deposits is influenced by operational decisions at the Corps of Engineers' dams located at the headwaters of the river. It is imperative, for our current operations, that a long range remedy be found for the Los Angeles River mouth, if navigational utility and effective flood control capability is to be maintained.

Although the Projects Plan-1994 cites a memorandum indicating sufficient capacity to effectively accommodate flood waters when released from Sepulveda and Hansen Dams, we are concerned as to how that capacity is maintained over time, given the annual level of silt deposition. The flood flow is also accompanied by a velocity and volume of the river, through the portions of the river historically dredged by the Corps, that was such that the City of

Long Beach experienced the loss of, or damage to, navigational buoys, marina mooring facilities, dredging equipment, and the usage by various commercial and recreational vessels. The most recent deposits, despite the emergency channel clearance, has resulted in extensive shoaling that still hinders navigational utility in the area.

It is estimated by the Corps of Engineers, in Project Plan-1994, that maintenance dredging of the channel to a minimum usable width, a project that does not clear all shoaling that hinders navigation, is $1,900,000. This is a level of dredging that allows for an annual accumulation of almost 175,000 cubic yards of silt deposits beyond what is being dredged and allows for the uncertainty of a rapidly developing shoal in any time of significant storms. An annual expenditure of $3,000,000 would be necessary to clear all annual silt deposits and prevent an accumulation of that material. Congress is, therefore, requested to appropriate $3,000,000 for the accomplishment of this critically needed work.

Reconnaissance Study - Beach Erosion

The Port of Long Beach also supports C-MANC and the City of Long Beach on their request for federal funding to initiate a Corps of Engineers reconnaissance study on beach erosion. In southeastern Long Beach, adjacent to the Port's land and channels, and directly opposite the federal breakwater, a beach and seawall protects approximately $200,000,000 worth of homes. Steady erosion had reduced the beach from an optimum of 175 feet to 30 feet prior to City's efforts in late 1994 to rebuild the beach. This winter's storms have reduced the beach width about 40 percent within one month of completion of the rebuilding.

Recently, the City has also experienced erosion in the west beach area. Although homes are not endangered, public improvements including lifeguard stations, public restrooms, a bicycle and pedestrian trail, and a parking lot are at risk. The cause of the new problem is unclear, indicating the need for a thorough study of the beach erosion problem inside the federal breakwater.

The primary method of protecting the homes has been annual rebuilding, with the building of sand berms during high tides or expected storms. In the past 14 years, the City has invested over $5,000,000 in capital improvement projects, annual beach rebuilding, and storm protection to control the beach erosion. Despite this effort, in 1989 and 1993, storm waves eroded the beach and breached the protective seawall causing damage to homes. The City is also defending itself against a lawsuit by one of the homeowners who is claiming that the City failed to halt erosion that narrowed the beaches in front of his home to less than the desired width adopted in the 1980 Local Coastal Plan.

It is, therefore, requested that Congress appropriate $300,000 to initiate a reconnaissance study of the beach erosion problem within the City of Long Beach, which is directly related to the focusing affect the federal breakwater has on this large commercial harbor complex and surrounding beaches.

Attached hereto is Resolution No. HD-1751, adopted by the Board of Harbor Commissioners of the City of Long Beach on March 6, 1995, which contains data relating to the background of the Los Angeles and Long Beach Harbors Model Study, the Los Angeles River dredging, the beach erosion problem in Long Beach, and other related navigation and economic matters. The resolution stresses the need for federal assistance in developing economic, technical and environmental background information essential to the design and permitting of Port facilities vital to regional and national interests. The Port of Long Beach is the largest container port in the United States and is the economic engine driving $3.5 billion in customs receipts from both Los Angeles and Long Beach ports and jobs for 500,000 people. We are truly a port and harbor of national significance.

We kindly ask that Congress continue its support of these projects in fiscal year 1996 by appropriating the requested funds.

Thank you for permitting me the privilege of this presentation.

E. D. Allen
Chief Harbor Engineer

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RESOLUTION NO. HD-1751

A RESOLUTION OF THE BOARD OF HARBOR COMMISSIONERS OF THE CITY OF LONG BEACH, CALIFORNIA, REQUESTING THE CONGRESS OF THE UNITED STATES TO APPROPRIATE FUNDS TO THE UNITED STATES ARMY CORPS OF ENGINEERS IN ORDER TO CONTINUE PLANNING, ENGINEERING AND DESIGN FOR THE SAN PEDRO BAY 2020 PLAN, TO CONTINUE THE LOS ANGELES AND LONG BEACH HARBORS MODEL STUDY RELATING TO IMPROVEMENTS IN SAN PEDRO BAY, TO CONDUCT MAINTENANCE DREDGING AT THE MOUTH OF THE LOS ANGELES RIVER AND TO CONDUCT A RECONNAISSANCE STUDY OF BEACH EROSION

WHEREAS, the Ports of Long Beach and Los Angeles in San Pedro Bay, California, are two of a limited number of sites on the West Coast of the United States which possess the potential for deep water port facilities as recommended in the West Coast Deep Water Port Facility Study conducted by the United States Army Corps of Engineers; and

WHEREAS, the Ports of Long Beach and Los Angeles have a record of both physical and fiscal growth to the extent that together the two are presently handling over 148 million metric revenue tons of cargo annually (fiscal year 1994), and the international cargo handled is valued at over 117 billion dollars annually (calendar year 1993); and

WHEREAS, the growth and activity of the Ports of Long

Beach and Los Angeles have a significant regional and national economic effect; and

WHEREAS, in excess of 3.5 billion dollars in federal revenues were collected as United States Customs duties on foreign imports passing through the Ports of Long Beach and Los Angeles during the fiscal year ending September 30, 1993; and

WHEREAS, both Ports are now, and are increasingly becoming, hard-pressed to provide facilities to meet the needs of the shipping industry, and to that end are conducting extensive studies, in conjunction with federal studies, to determine navigational, transportation, and environmental requirements necessary to provide economic and adequate surge-free berthing and cargo handling facilities; and

WHEREAS, all existing land in the Port of Long Beach which can be developed for shipping operations has been utilized or is in the process of being developed and, in order to meet the needs of the following decade, the design, permitting and construction of new lands must continue; and

WHEREAS, continuation of the studies currently underway by the United States Army Corps of Engineers, consisting of the Los Angeles and Long Beach Harbors Model Study, including maintenance and operation of the San Pedro Bay Hydraulic Model at Vicksburg, Mississippi, as authorized by Section 123 of the Water Resources Development Act of 1976, is needed for use in the design and permitting processes for future landfills for port development; and

WHEREAS, the Port of Long Beach handled over 28 million metric tons of liquid bulk cargo (fiscal year 1994). Because of economies of scale, liquid bulk cargo brought in by deeper draft vessels will have lower transportation costs. However, the existing navigation channel depths leading to the Port limits the size of calling vessels.

WHEREAS, the Los Angeles River is the largest of numerous flood-control channels constructed and maintained jointly by the Los Angeles County Flood Control District and the United States Army Corps of Engineers, and silt deposit from heavy storm runoff in recent years accumulating in the mouth of the Los Angeles River in the City of Long Beach constitutes a restriction and hazard to both commercial and recreational boating; and

WHEREAS, the Board of Harbor Commissioners of the City of Long Beach, as a properly constituted and financially responsible local agency, by its Resolution No. HD-890, adopted August 3, 1965, expressed its intent to enter into such agreements as may be reasonably required to further federal projects for the development and improvement of Long Beach and Los Angeles Harbors; and

WHEREAS, at southeastern Long Beach in front of Alamitos Bay a beach and seawall protects Two Hundred Million Dollars ($200,000,000) worth of homes. The primary method of protecting the homes has been annual beach rebuilding and sand berms during storms. Steady erosion has reduced the beach from optimum width of 175 feet to 30 feet and continues to reduce beach width despite rebuilding efforts in 1994. In the past 14 years, the City has invested over Five Million Dollars ($5,000,000) in capital improvement projects, annual beach rebuilding and storm protection to stop erosion. Despite this effort, in 1989 and 1993, storm waves eroded the beach and breached the protective seawall causing damage to homes.

NOW, THEREFORE, the Board of Harbor Commissioners of the City of Long Beach resolves as follows:

Section 1. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to maintain the San Pedro Bay Hydraulic Model at the Waterways Experiment Station at Vicksburg, Mississippi, as part of the Los Angeles and Long Beach Harbors Model Study.

Sec. 2. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to complete the feasibility study and the planning, engineering and design for dredging deeper navigation channels to the Port of Long Beach.

Sec. 3. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to continue the existing wave gauge (prototype) data acquisition and analysis program.

Sec. 4. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, in conjunction with the Los Angeles County Flood Control District, to engage in the necessary maintenance dredging at the mouth of the Los Angeles River to remove silt deposits which have accumulated at that location.

Sec. 5. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to engage in a reconnaissance study to develop protective measures to prevent beach erosion within the City of Long Beach.

Sec. 6. That the Executive Director of the Long Beach Harbor Department be, and he is hereby, directed to send copies of this resolution to the United States Senators and to Members of the House of Representatives from California, with a letter requesting their assistance in presenting this resolution before the proper Congressional committees.

Sec. 7. That the Executive Director of the Long Beach Harbor Department be, and he is hereby, further directed to send copies of this resolution to the President of the United States; the Director, Office of Management and Budget; the Secretary of the Army; the Chief of Engineers, the Division Engineer-South Pacific Division and the District Engineer-Los Angeles, all of the United States Army Corps of Engineers; and to such other interested persons as he may deem appropriate.

The Secretary of the Board shall certify to the passage of this resolution by the Board of Harbor Commissioners of the City of Long Beach, shall cause the same to be posted in three (3) conspicuous places in the City of Long Beach, and shall cause a certified copy of this resolution to be filed forthwith with the City Clerk of the City of Long Beach and it shall thereupon take effect.

I hereby certify that the foregoing resolution was adopted

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by the Board of Harbor Commissioners of the City of Long Beach at its meeting of March 6, 1995, by the following vote:

Ayes: Commissioners Murchison, Bellehumeur, Hearrean

Noes: Commissioners None

Absent: Commissioners Hauser, Perez

Not Voting: Commissioners None

Acting Secretary

RLL:dmp
2/27/95
U-2

Mr. SCHEELER. Vern Hall, Chief Harbor Engineer, Port of Los Angeles.

Mr. HALL. Thank you, Mr. Chairman, committee. I will be equally brief. I would like to point out a milestone event that occurred this week, about two days ago, when Dr. Zirschky signed a credit agreement between the Army Corps of Engineers and the Port of Los Angeles, which basically lays out a multiyear program which is unfortunately has about—well, fortunately for us, has about $108.6 million of identified Federal interest.

We, you may know, are proceeding with the first stage of that construction at our own risk, if you will. And that project is going extremely well. Hopefully, next time you are on the West Coast in Southern California, we will be happy to give you a tour of an extremely large dredging project, 26 million cubic yards, creating 260 acres of new land in the outer harbor of the Port of Los Angeles.

This year we are asking for all of $100,000 for the Corps staff to fulfill their role of monitoring that first stage of development. I am actually laying the groundwork for some future testimony under the terms of that agreement. And we are also supporting an additional 325,000 for continued wave data application and an additional sum of 160 for our excellent Vicksburg model, which really served as a tremendous design tool in designing that project.

So my full testimony is in your packet. I thank you for your attention.

Mr. RIGGS. Thank you. And the rivalry, friendly rivalry between the Port of Long Beach and the Port of Los Angeles is noted for the record. Hopefully we can do justice to both.

[The statement of Mr. Hall and the City of Los Angeles Department of Water and Power follows:]

Testimony of

Vernon E. Hall

Chief Harbor Engineer

City of Los Angeles Harbor Department

before the

House Energy and Water Development

Subcommittee on Appropriations

March 29, 1995

Mr. Chair and Members of the Subcommittee:

I am Vernon E. Hall, Chief Harbor Engineer for the City of Los Angeles Harbor Department. My testimony today, on behalf of the City of Los Angeles, and its Board of Harbor Commissioners, supports the continuation of the federal role in the implementation of major navigation improvements at San Pedro Bay, California.

Pier 300/400 Implementation under the 2020 Development Program

The Commissioners, management and staff of the Port of Los Angeles have been working since early 1985 with the U.S. Army Corps of Engineers on implementation of the initial phase of the 2020 Plan for San Pedro Bay which was authorized in Section 201(b) of the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662) and further sanctioned by Section 104 of WRDA 88 (P.L. 100-371) and Section 102(c) of WRDA 90 (P.L. 101-640). We call this initial phase of the 2020 Plan the Piers 300 and 400 Implementation Program. As you know, the 2020 Plan anticipates the phenomenal growth of the San Pedro Bay Ports of Los Angeles and Long Beach which, today, form one of the largest and most successful port complexes in the world. The Port of Los Angeles, alone, remains the busiest port in the United States, serving, as a principal gateway to the ever-growing Pacific Rim maritime trade. In order to keep pace with projected increases in world commerce through the Port, we are dependent upon continued federal support to maintain our existing channels and to develop even deeper navigation channels which, once constructed, will provide significant increases in federal benefits.

Milestone Events Accomplished

Milestone No. 1: Award of Construction Contract

Today, I am pleased to inform this Subcommittee that on July 14, 1994 the Port of Los Angeles awarded a contract for the construction of the initial stage of the 2020 Plan in Los Angeles

Harbor. This initial stage includes dredging new federal navigation channels to existing land at Pier 300 and reclaiming approximately 250 acres of new land at Pier 400. The contractor began work on September 6, 1994 and is currently scheduled for completion in June, 1997.

Milestone No. 2: Maintenance Dredging of Existing Federal Channels

We would like to thank this subcommittee for appropriating requested funds in the Corps of Engineers FY95 budget for maintenance dredging of the Glen Anderson Ship Channel and other existing federal channels in the Port of Los Angeles to a depth of 45 feet below mean lower low water (MLLW). The Los Angeles District Engineer is preparing construction plans and will award a contract for required maintenance dredging this fiscal year as approved by this subcommittee last year. Based on this we are prepared to support the Los Angeles District Engineers' office in accomplishing the required maintenance dredging during FY 1995.

Milestone No. 3: Proposed Credit Agreement

Another significant project milestone achieved is the completion of a credit agreement between the Corps of Engineers and the Port which identifies the federal financial interest in the initial phase of the 2020 Plan. The credit agreement established the federal interest consistent with WRDA 86 and current Corps policy. It also identifies the contractual relationship between the Corps and Port for designing, constructing and monitoring the project. The federal interest is limited to $108.6 million of the total $550 million project. The credit agreement was executed by the Port on March 9, 1995 and is currently before the Assistant Secretary of the Army (Civil Works) for execution. The Port of Los Angeles looks forward to future testimony in support of the President's budget for Stage II of the federal project which will include this credit for the work now underway.

Construction Phase

Acknowledging these milestone events, the Administration's FY 1996 budget includes a request for $100,000 for the construction phase of the federal interest project at Los Angeles Harbor. In addition, we request $325,000 for continued wave data collection by WES necessary to validate the numerical and physical models used for project design. The Port of Los Angeles fully supports this request which will ensure uninterrupted full project implementation.

Vicksburg Models

During the course of the state-of-the-art design effort undertaken by the Port for the Pier 300 channels and Pier 400 land reclamation, we were able to successfully utilize many of the advanced modeling and design tools available at the Corps of Engineers' Waterways Experiment Station (WES) in Vicksburg, Mississippi. Eight separate, but related models developed and maintained by the scientists and engineers of WES were used during the design of the Pier 300/400 project by Port engineers and consultants with full participation by the Los Angeles District Engineer's staff. Maintenance of the Vicksburg hydraulic physical model and its prototype data acquisition facilities remains an essential resource for the District Engineer and the Port of Los Angeles. The President's budget request has a modest $160,000 for ongoing maintenance during FY 1996. The Port fully supports this request.

Summary

In summary, the Port of Los Angeles urges your Subcommittee to include in the FY 1996 budget appropriation, $425,000 for construction efforts, and $160,000 for maintenance of the Vicksburg model. The Port of Los Angeles has long valued the understanding exhibited by your Subcommittee of the importance of the Port industry to the economic health of the Nation. This understanding has been backed up by appropriation of scare federal resources for harbor and navigation projects such as ours.

Thank you, Mr. Chairman, for the opportunity to appear before you today and to submit this testimony in support of continued federal activities at the Port of Los Angeles.

VERNON E. HALL

Chief Harbor Engineer
City of Los Angeles Harbor Department

#170

STATEMENT OF THE CITY OF LOS ANGELES DEPARTMENT OF WATER AND POWER SUBMITTED TO THE HOUSE COMMITTEE ON APPROPRIATIONS ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE

March 1, 1995

This statement of the Los Angeles Department of Water and Power (LADWP) is respectfully submitted to the House Appropriations Committee Subcommittee on Energy and Water Development in support of the Bureau of Reclamation's Fiscal Year 1996 budget request of $9.3 million for the Los Angeles Area Water Reuse Project. This project, which has received the support of the Subcommittee in the previous two fiscal years, is a partnership between the federal government and local water agencies to expedite the development of additional water supplies for the Los Angeles area. Federal participation in this project is authorized under P.L 102-575 which allows for up to twenty-five percent cost sharing by the Bureau of Reclamation in project units whose combined output totals a maximum of 120,000 acre-feet per year.

The LADWP is the largest municipal utility in the United States and provides water and electricity service to the 3.5 million residents and business owners in Los Angeles. Its sources of water supply include surface and ground water from the Owens Valley region, delivered to the city via Los Angeles' own aqueduct system; water purchased form the Metropolitan Water District which is imported from Northern California and the Colorado River; and local groundwater. In order to meet future increases in water demand and current environmental protection requirements, the LADWP has undertaken an aggressive program to develop alternative water supplies including permanent water conservation measures and water reuse projects.

The centerpiece of LADWP's water reuse program is the East Valley Water Reclamation Project, one of three units in the Bureau's Los Angeles Area Water Reuse Project. The other two units are the LADWP's Terminal Island Water Reclamation Project, and the West Basin Water District's West Basin Project in which LADWP is also a participant.

The East Valley unit will reuse up to 35,000 acre-feet per year of effluent from the Tillman Water Reclamation Plant for industrial purposes, power plant cooling, and groundwater recharge. In FY 96 work will continue on design of the overall project and construction will begin on the pump station and the pipeline to the groundwater spreading basins.

The Terminal Island Water Reclamation Project is the newest unit of the Los Angeles Area Water Reuse Project with work scheduled to begin in FY 96. This unit includes advanced treatment (beyond tertiary) for 5 million gallons per day - based on the anticipated results of a pilot study - and a distribution system. The ultimate output from the unit will provide reclaimed water to LADWP's Harbor Generating Station and to the Water Replenishment District of Southern California for use as a seawater intrusion barrier in the Dominguez Gap Barrier Project. During FY 96 LAADWP will design and construct a pilot plant to evaluate the technical and economic feasibility of utilizing microfiltration as a pretreatment process for reverse osmosis treatment of effluent from the Terminal Island Treatment Plant.

The LADWP appreciates the Subccmmittee's past support for the Los Angeles Area Water Reuse Project and requests approval for the Bureau's FY 96 budget request for continued federal participation in the project. This participation is essential to allow the LADWP to maintain its current schedule for these project units which are vital to the water needs of Los Angeles.

Mr. SCHEELER. John Walters, special projects engineer, City of Newport Beach.

Mr. RIGGS. And that was not meant, by the way, to overlook the Port of Oakland, either.

Mr. WOLTER. Thank you, Mr. Chairman. Mr. Chairman, Mr. Myers, my name is John Wolter. I would like to thank you for this opportunity to represent Newport Beach and request your support for several projects in the study which are in the Corps' program, which have impact on the City of Newport Beach. One major project that you have already heard of and which we support is the continued efforts on the Santa Ana River mainstem project.

A second project that is in the current budget or in the proposed budget is an environmental study in upper Newport Bay to do dredging that would enhance some wetlands area. Two projects, however, aren't in the current budget, and we are asking your support. One of them is a continuation of an ongoing cooperative Federal beach erosion control project, which includes significant benefit from Orange County, Newport Beach, Huntington Beach, Seal Beach, and the State of California.

Earlier in the year with the county's financial problems, the Corps chose to show that as a deferred project. However, there is need for the project. The county has just announced us partners that their money is available, and we are trying to work with the Corps to get that project moved ahead. There is $3.5 million of local money and we are asking for $6 million of Federal support.

A second project not in the budget, but we have been working with the Corps on locally, is maintenance of harbor entrance jetties at Newport Beach. They are federally owned structure, they have been in place for over 60 years and haven't had any maintenance. And within my testimony, I have included some pictures from their Corps report that show some of the deteriorated concrete structures that are out there now. We would like to ask your support and continue to work towards maintaining that structure.

Again, thank you very much for this opportunity.

[The statement of Mr. Wolter follows:]

BEFORE

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER
HON: JOHN MYERS, CHAIRMAN

TESTIMONY ON
F.Y. 1996 ENERGY AND WATER APPROPRIATIONS
NEWPORT BEACH AND ASSOCIATED PROJECTS

PRESENTED BY
CITY OF NEWPORT BEACH, CALIFORNIA
JOHN WOLTER, DEPARTMENT OF PUBLIC WORKS
MARCH 29, 1995, 1994

CITY OF NEWPORT BEACH
PUBLIC WORKS DEPARTMENT
P.O. BOX 1768, NEWPORT BEACH, CA 92659-1768
(714) 644-3311

March 29, 1995

Honorable John Myers, Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
2362 Rayburn Hourse Office Building
Washington D.C. 20515

Subject: Statement of the City of Newport Beach before the Committee on Appropriations March 29, 1995

Dear Mr. Chairman and Members of the Committee,

The City of Newport Beach is in support of the California Marine Affairs and Navigation Conference (CMANC) proposal for the 1996 Federal budget, which proposes funding of several Corps of Engineers studies and projects which affect the City of Newport Beach. In particular the City requests your support for continued funding of the Santa Ana River Mainstem Project which enters the Pacific Ocean adjacent to the City.

The City also supports three other Corps of Engineers projects with funding recommended in the 1996 fiscal year. These are described below:

1. Newport Harbor Entrance Jettys - complete repairs ($1,750,000)
   The Corps' Los Angeles District has completed a condition survey of the Harbor entrance jettys and recommends maintenance and rehabilitation of only the West jetty. Both jettys show signs of storm damage and wear since their construction in the late 1920's and early 1930's. For over 60 years the East jetty has provided public access, which the Corps of Engineers has now recommended closing in lieu of maintenance. The City therefore recommends that a total of $1,750,000, which includes $500,000 for concrete repairs to the West jetty, be provided in the 1996 fiscal year under operations and maintenance in the Bill that you are considering.

3300 Newport Boulevard, Newport Beach

2. The Upper Newport Bay - Feasibility Study ($250,000)

The Corps' Los Angeles District has completed a reconnaissance report which determined Federal interest in the project and recommended preparation of a feasibility study. The study will provide planning and engineering necessary to extend the existing Federal Channel into Upper Newport Bay, and to remove sediment from the Upper Bay to enhance and protect wetland areas, salt marsh and navigational channels. Funding to initiate the study was approved in the 1994 Federal budget. This request is for $250,000 needed to continue the study.The County of Orange and the City of Newport Beach are the local sponsors providing 50/50 matching funds for the study.

3. Cooperative Federal Beach Erosion Control Project Surfside/Sunset Beach to Newport Beach ($6,100,000)

These funds are the Federal share of the funding necessary to continue beach nourishment. This project constructed the West Newport Beach Groin Field and beach fill during the 1970's and has continued to dredge sand onto a feeder beach at Surfside/Sunset Beach. The State of California, County of Orange and Cities of Newport Beach, Huntington Beach and Seal Beach are local sponsors. The cooperative project provides for 67% Federal and 33% Local matching funds.

Thank you,

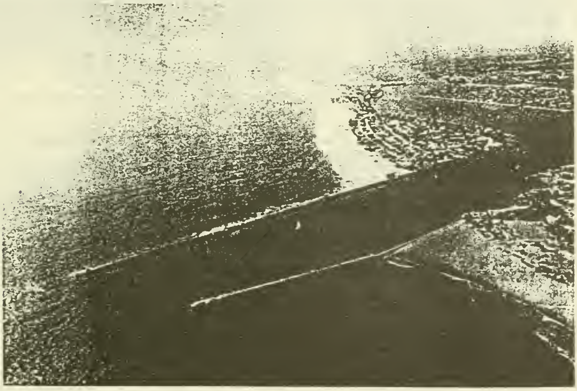
John Wolter
Cooperative Projects Engineer

JW:kc

US Army Corps
of Engineers
Los Angeles District

Newport Bay Harbor
Orange County, CA

Condition Survey for Entrance Jetties



November 1993

EXECUTIVE SUMMARY

This condition survey was conducted for the purposes of identifying the present condition of the Federal structures, evaluating the necessity of scheduling a rehabilitation contract, and developing a long-term program for monitoring and inspection. Extensive field data was collected which included side scan sonar surveys, topographic and fathometric surveying, and visual observations.

The west jetty STA 8+00 - 15+00 is in poor condition and is recommended for repairs to full design conditions. Although the structural integrity is not immediately threatened and there is no threat of imminent failure, there are indications of serious storm damage and wear. Crest elevations and cross-sectional profiles indicate a general poor agreement with design profiles.

The west jetty STA 15+00 - STA 29+75 is in poor condition and is recommended for repairs to full design conditions on the seaward side between STA 15+00 - STA 27+00, and selected locations on the channel side. Visual observations and cross-sectional profiles indicate a poor agreement with design profiles. Damage is significant enough such that the structural
* integrity is immediately threatened by a significant storm event.

The west jetty STA 29+75 - STA 36+50 is in good overall condition and performing its intended function well. Visual observations and cross-sectional profiles indicate a good agreement with design profiles. The head section is recommended for rehabilitation to full design condition.

The reinforced concrete bulkhead section of the east jetty is in fair overall condition and performing its intended function; no structural rehabilitation is recommended. The interlocking sheet piles appear in good condition but the ends indicate deterioration. The concrete slab deck has deteriorated. However, the slab deck is not an integral structural member and serves mainly to contain the supply of fill sand between the bulkheads. The present condition of the deck does not immediately threaten the jetty system; the potential for future related progressive damage to the jetty structure or function is low. The concrete slab deck is not recommended for repairs at this time. Some of the sand fill between the two bulkheads has been lost over time; it is recommended that this fill be replaced. The deck currently serves as a pedestrian promenade. Due to the wave overtopping that can occur and the deterioration
** of the deck, in the interest of public safety it is recommended that all pedestrian and/or vehicular access be restricted.

The east jetty spur is in excellent condition at this time and requires no remedial action.

** See attached photos East Jetty. Restricting Ped-access to East Jetty will be difficult/impossible. City recommends that concrete repairs to East Jetty be included.

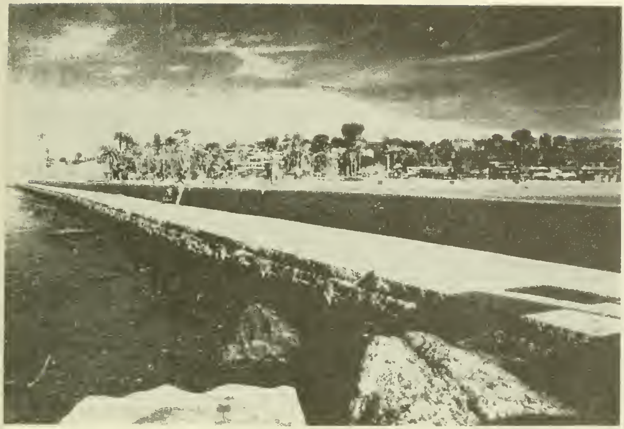


Photo 38. East jetty reinforced concrete bulkhead, general view from seaward STA 24+30.

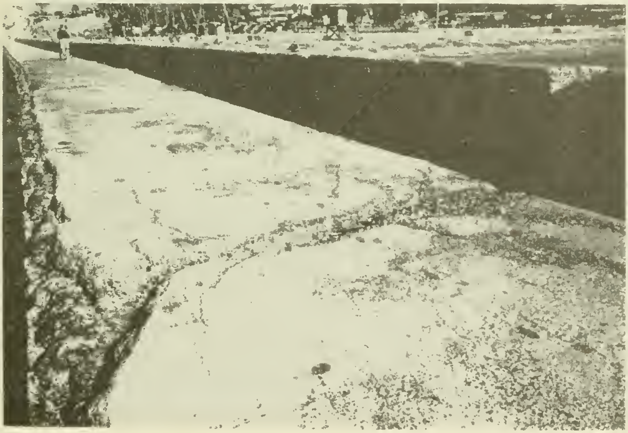


Photo 39. East jetty bulkhead, reinforced concrete deck. Note cracks.

Photo 40. East jetty bulkhead, general view from beach STA 17+07. Note parapet and sand to el +11 ft.

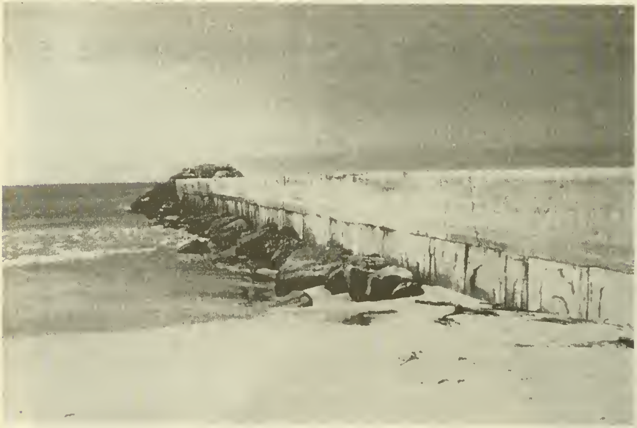


Photo 41. East jetty bulkhead, general view from beach STA 21+00. Note revetment condition.

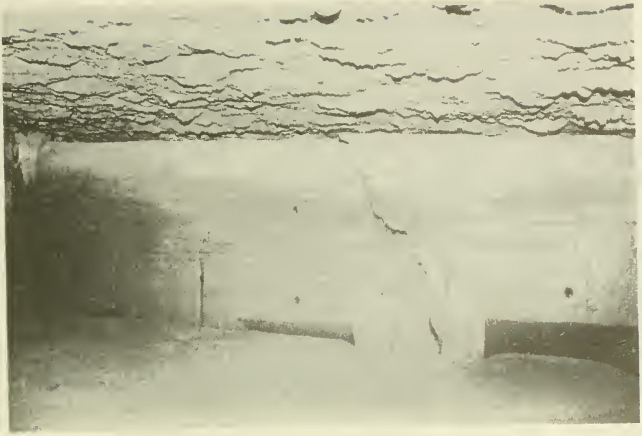


Photo 44. East jetty bulkhead, interior view of cast-in-place beam. Note shear crack.

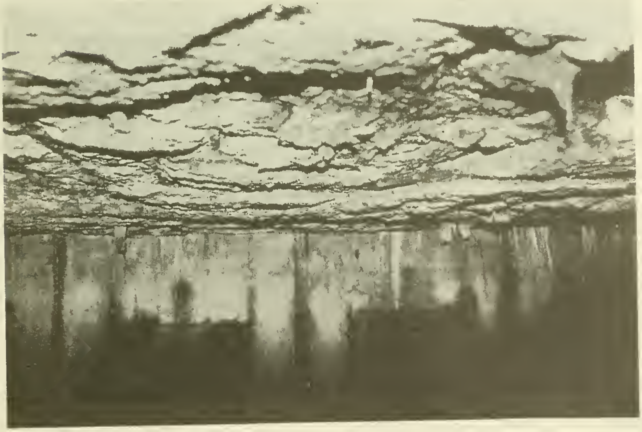


Photo 45. East jetty bulkhead, interior view of deck reinforcement. Note corrosion.

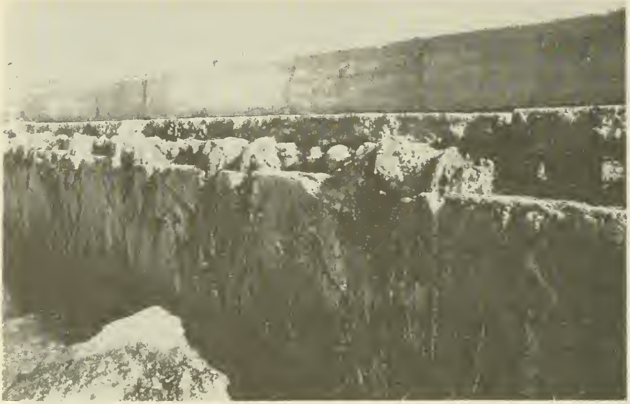


Photo 46. East jetty bulkhead, view of deck spalling, reinforcement detail, sheet pile end corrosion.

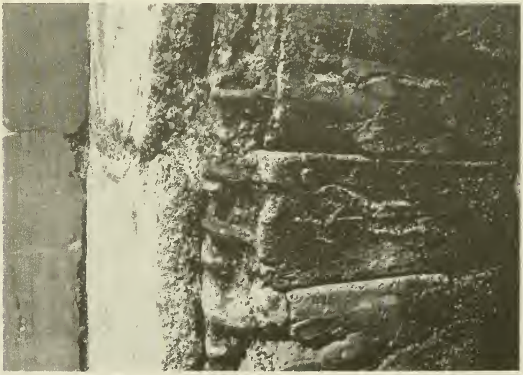


Photo 47. East jetty bulkhead, view of deck spalling and cracking, reinforcement detail, sheet pile end corrosion.

Mr. RIGGS. Thank you. The Corps has taken the position with respect to the maintenance of the jetties that that is now a local responsibility?

Mr. WOLTER. No, they have deferred it. They have deferred that. Last year we were in the budget. However, their appropriations weren't found. They have now deferred it. They just simply deferred it this year. And we are requesting that there has been more damage in the recent storms and that efforts need to be undertaken to keep that harbor entrance safe.

Mr. RIGGS. And with respect to the beach erosion control project, it is your hope that because you have a local match set aside, that the Corps will expedite?

Mr. WOLTER. The project was scheduled for this year, but was deferred when there was concern that local funds wouldn't be available. They are now available.

Mr. RIGGS. Thank you.

Mr. SCHEELER. Patrick Ryan, Assistant Director of Government Affairs, Port of Oakland.

Mr. RYAN. Port of Oakland is here. I am pleased to present testimony on behalf of the Port of Oakland Channel Improvement project.

This project is the most vital element necessary for our continued growth, and a most important economic factor in the Bay Area economy. The appropriations this committee is considering today will assure our channel deepening will move forward.

These appropriations contained in the President's budget include $14 million for concluding the 42-foot project, and $2.205 million for annual operations and maintenance.

We thank you for your past support. We thank you greatly for your past support, and again thank the committee for the opportunity to submit testimony. Appreciate it greatly.

We are going forward, dredging. Bill tells me we should start the first of May.

[The statement of Mr. Ryan follows:]

PORT OF OAKLAND

CHARLES W. FOSTER
Executive Director

March 24, 1995

Representative John T. Myers, Chairman
& Members of the House Subcommittee
on Energy & Water Development

Dear Representative Myers & Members of the Committee:

I appreciate the opportunity of submitting written testimony on behalf of the Port of Oakland in support of appropriations that are under consideration by the House Subcommittee on Energy & Water Development. The appropriations as recommended in the President's budget, and necessary to maintain the ongoing programs, will provide $14-million for the deepening of the Oakland Inner and Outer Harbor channels, and will also provide $2.205-million for annual operations and maintenance. We request your support of this recommendation, plus the $500,000 recommended for the Sonoma Baylands wetland restoration project and $150,000 for implementation of the Long Term Management Strategy (LTMS), with emphasis on developing disposal sites.

We appreciate past actions that have been taken by you and the House Subcommittee with respect to ongoing appropriations. These appropriations have now brought us to the point where the dredging contract has been awarded, equipment mobilization is taking place, and the actual construction will begin early May, 1995 on the Oakland Channel Deepening Project.

I would ask that this written material be incorporated as a part of the hearing record. Thank you for your consideration.

Sincerely,

Charles W. Foster
Executive Director

OFFS
CAMERA

530 Water Street ▪ Jack London's Waterfront ▪ P.O. Box 2064 ▪ Oakland, California 94604-2064
Telephone (510) 272-1100 ▪ Fax (510) 272-1172 ▪ TDD (510) 763-5703 ▪ Cable address, PORTOFOAK, Oakland

TESTIMONY BY THE PORT OF OAKLAND

BEFORE THE HOUSE SUBCOMMITTEE ON ENERGY & WATER DEVELOPMENT

MARCH 29, 1995
WASHINGTON, D.C.

By Charles W. Foster, Executive Director

Chairman Myers, & Members of
the House Committee

I want to thank you for the opportunity of submitting written testimony in support of appropriations that are under consideration by the House Subcommittee on Energy & Water Development. These appropriations, as recommended in the President's budget, and necessary to maintain the ongoing projects, provide $14-million for continuing construction of the -42' Oakland Harbor Channels, and provide $2.205-million for annual operation and maintenance related to the Oakland harbor.

We particularly appreciate past actions that have been taken by you and the House committee with respect to ongoing appropriations that have now brought us to the point where actual construction of the -42' Oakland Channel deepening will commence in early May, 1995.

The Oakland Harbor Channel Improvement is a federally authorized project undertaken by the U.S. Army Corps of Engineers. The project was authorized for construction by the Water Resources Development Act of 1986.

The project will deepen the channels to -42 feet, mean lower low water (MLLW), and provide additional navigational improvements. Approximately 5.6 million cubic yards of material must be dredged to provide the necessary channel improvements.

The Corps estimates the annual benefits for Project Year 1 (1997) are approximately $40 million. Average Annual Benefits (1997-2047) are approximately $144.5 million. Benefits of the project are derived from:

A. The use of larger vessels with lower operation cost and lower fuel consumption per ton of cargo carried.

B. Elimination or reduction of tidal delays.

C. Improvement in navigation vessel safety and reduction in possibility of collisions or groundings.

As the local cooperating agency for the channel improvements, the Port of Oakland is fully committed to meet its financial obligations as required under the Water Resources Development Act of 1986, with the balance of the project cost to be funded from federal appropriations.

Through strong Administration and Congressional support, with close collaboration with environmental groups, organized labor, and the local community, a three part dredge disposal plan was developed:

- Ocean disposal 55 miles offshore
- 300 acre Wetland Restoration Project using suitable dredged material
- Innovative upland disposal plan on Port property

The Port of Oakland also supports the President's recommendation for the appropriation of $500,000 for the Sonoma Baylands wetland restoration.

With regard to the future study and disposal site selection implementation, the San Francisco Bay Long Term Management Strategy (LTMS) has focused attention on the future Regional disposal needs and effectively brought all the parties together to develop a responsive dredge disposal plan. I respectfully request your support of an appropriation of $150,000 for the implementation of the LTMS as recommended in the President's budget. We thank you and the Committee for its support of past appropriations.

The appropriations under consideration today will permit the Corps of Engineers to continue the construction of this project, plus necessary maintenance. The current schedule calls for the Oakland Channel Deepening Project, as described in its authorization, to commence actual dredging in May 1995 and be completed in November 1996.

As I stated earlier, we appreciate the cooperation and support of this committee and join with the California Marine Affairs and Navigation Conference (C-MANC) to urge your approval of the appropriations request as submitted.

###

Mr. RIGGS. It is very exciting, and let me just point out, since it is right next door to my congressional district, that we are very excited about the Sonoma Bay Wetlands Restoration project. We realize it is a model, we hope, for the rest of the country.

Mr. RYAN. That has gone so well. And the costs are far less than originally anticipated. And it is just a fabulous Federal–State port, environmental project, a real model.

Mr. RIGGS. Well, we recognize that. Again, it can be just that, it can serve as a national model for the rest of the country, and some policy changes may be necessary on the authorizing side, if reauthorization or some other legislation vehicle to allow for a cost share.

Mr. RYAN. That pleases me greatly. Thank you.

Mr. RIGGS. Thank you very much for your testimony.

Mr. SCHEELER. I take my chairmanship hat off for a second and speak for the Port of Sacramento. Port of Sacramento is the local sponsor of the Sacramento Deep Water Ship Channel Navigation project.

The first two of six stages have been completed in this project and a recent settlement with the local utility has resolved the issue of financial responsibility for the utility crossing relocations that has delayed phase three. The Port of Sacramento continues its efforts to reinforce the financial base and will allow for the restart of dredging and, hence, the successful completion of this important project.

The Port of Sacramento has improved its facilities to both project—protect, rather, the environment and broaden its business base to serve the international community—commodity needs of California, thus benefitting the local, State and national economies.

On behalf of the Port of Sacramento, I convey our appreciation for your past commitment to this project and request that you support funding in the amount of $100,000, which is in the President's budget, to allow continuation of Corps of Engineers project management activities. I will also note that we will provide the committee a compilation of the requests which exceed those identified in the President's budget.

Very quickly, because I know time is of the essence here, I would like to do some introductions very quickly. If I could have the people named off please stand very quickly. Mayor Allan Airoldi and Vice Mayor Norman Richardson, town of Corte Madera. Don Cotton, Vice Mayor, San Marino, President, Cotton/Beland Associates.

Mr. RIGGS. I think they have all gone to lunch.

Mr. SCHEELER. Well, what can I say?

Commissioner Jess Herrera, and Commissioner Jess Ramirez, Port of Hueneme. Commissioners Jack Castle, Richard Dodge, Michael Giari and Guy Smith, Port of Redwood City. Ronald Coale, Chairman of Port of Stockton Harbor Commission. Commissioner Betty Stone, San Mateo Harbor. Rod London, Vice President, Concept Marine, and his wife Tammie. Charles Randall, Vice President, DMJM, and his wife Jan.

Bill Herb, program manager, HDR engineering. Michael Gasparro, Associate Vice President, Holmes and Narver. Daryle Bailey, Len Cardoza, Richard Dornhelm and Robert Nichol, Moffatt and Nichol. William Bagley, Nossaman law firm. Robert Bein, President, Robert Bein, William Frost.

Robert Stephens, Executive Vice President, Centenial Engineering. Bill Gilfillan and Bill Dutra, the Dutra Group. Laura Guluzzy, member Half Moon Bay yacht club. Les Westfall, board member, master contractor, Stevedore Association of Pacific Coast.

Mr. RIGGS. You didn't mention good friend, a personal friend of——

Mr. SCHEELER. Absolutely. And his son Andy Westfall, President, Westfall Stevedoring.

Mr. MYERS. A friend of the committee for many years, too.

Mr. SCHEELER. And Stan Ekren, divisional manager, Great Lakes Dredge and Dock.

That concludes our testimony. I apologize for the length of it. We want to thank you for your time consideration.

Thank you very much.

[The statement of Mr. Scheeler follows:]

STATEMENT OF THOMAS SCHEELER
ASSISTANT DIRECTOR OF ENGINEERING
PORT OF SACRAMENTO
TO SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
WEDNESDAY MARCH 29, 1995

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

THE SACRAMENTO-YOLO PORT DISTRICT IS THE LOCAL SPONSOR OF THE SACRAMENTO RIVER DEEP WATER SHIP CHANNEL NAVIGATION PROJECT. THE FIRST TWO OF SIX PHASES HAVE BEEN COMPLETED ON THIS PROJECT AND A RECENT SETTLEMENT WITH THE LOCAL UTILITY HAS RESOLVED THE ISSUE OF FINANCIAL RESPONSIBILITY FOR UTILITY CROSSING RELOCATIONS THAT HAS DELAYED PHASE 3. THE PORT OF SACRAMENTO CONTINUES ITS EFFORTS TO REINFORCE THE FINACIAL BASE THAT WILL ALLOW FOR THE RESTART OF DREDGING AND HENCE THE SUCCESSFUL COMPLETION OF THIS IMPORTANT PROJECT. THE PORT OF SACRAMENTO HAS IMPROVED ITS FACILITY TO BOTH PROTECT THE ENVIRONMENT AND BROADENED ITS BUSINESS BASE TO SERVE THE INTERNATIONAL COMMODITY NEEDS OF CALIFORNIA AND THUS BENEFITING THE LOCAL, STATE AND NATIONAL ECONOMIES.

ON BEHALF OF THE PORT OF SACRAMENTO, I CONVEY OUR APPRECIATION FOR YOUR PAST COMMITMENT TO THIS PROJECT AND REQUEST YOU SUPPORT FUNDING IN THE AMOUNT OF $100,000 TO ALLOW CONTINUATION OF CORPS OF ENGINEERS PROJECT MANAGEMENT ACTIVITIES.

PORT OF REDWOOD CITY
San Francisco Bay

TESTIMONY OF THE

PORT OF REDWOOD CITY

Before the Energy & Water Subcommittee
Committee on Appropriations

Submitted by:

Richard A. Dodge, Chairman
John "Jack" Castle, Vice Chairman
Guy H. Smith, Commissioner
Michael J. Giari, Acting Executive Director

March 29, 1995

* * *

On behalf of the Port of Redwood City, California, I would like to express my strong support for the 1995 Water Resources Development Act (WRDA), and specifically the provision to appropriate $2.6 million for the U.S. Army Corps of Engineers in Fiscal Year 1996, to conduct regularly scheduled maintenance dredging of Redwood City Harbor and Channel. Our testimony addresses the justification for the FY-1996 Operation and Maintenance appropriation, and the importance of developing an upland disposal funding formula.

The San Francisco Bay Area maritime industry sustains 100,000 jobs and generates $5.4 billion every year. Over 1,000 of these jobs are linked to the continued viability of the Port of Redwood City. If the Port of Redwood City and other Bay Area ports are to continue their role in America's economy, Congress must continue to invest in improvement and maintenance of our nation's deep draft navigation system.

Background

Location. The Port of Redwood City is located 18 nautical miles south of San Francisco on the west side of San Francisco Bay. It provides deep draft access to the mid-Peninsula and Santa Clara Valley metropolitan area, and is the only deep draft port in South San Francisco Bay handling cargo to and from oceangoing ships and barges.

History. The California gold rush and resulting population boom in San Francisco gave birth to the lumbering industry in the Peninsula redwoods. Logs were shipped to San Francisco Bay points via rafts and lumber schooners, using Redwood Creek at high tide to reach what is now downtown Redwood City. The city was named for the redwood lumber industry which was the basis of the earliest commercial maritime activities. Later, following development of navigation improvements, the importation of marine shells for use by the cement manufacturing plant at the Port and the exportation of salt from local producers, were the basis for significant increases in maritime commerce. Today, commodities moving through the Port include: salt, petroleum products, cement, scrap metal, lumber, gypsum and bauxite.

In FY-94 Port tonnage was the highest ever, at over 800,000 metric tons. Tonnage growth at the Port is expected to continue. Demand by the construction industry in the south Bay Area for lumber, cement and construction aggregates will remain strong. Trade with nations in the Pacific Rim is the fastest growing and most dynamic in the world. The demand for use of port facilities and navigation channels over the next decade will be a challenge to be met by all West Coast ports, including the Port of Redwood City.

Appropriation History

Due to the shallow nature of San Francisco Bay, maintenance dredging is necessary in order to ensure safe navigation of ocean-going ships. There is no reliable method of estimating siltation rates for a large estuary like San Francisco Bay. The Redwood City Channel is subject to tidal currents, wave action, rainfall runoff, and even seismic activity, which can affect changes in the configuration of the Channel.

In 1965, Congress authorized and appropriated funds for the dredging of the Redwood City Navigation Channel to a depth of 30 ft. Thereafter, maintenance dredging was conducted by the Corps of Engineers approximately every five years.

Although the Channel's maintenance dredging was completed in January 1990, the entire Channel was not restored to the fully authorized depth of 30 ft. The average annual maintenance requirement for the 5-year period was 1,000,000 cubic yards. Due to permit conditions and constructions limits, however, the Corps was able to dredge only 800,000 cubic yards, leaving parts of the Channel at depths of 28 ft. Less than a year after the 1990 dredging, certain parts of the Channel were found to have depths of only 25 ft -- far too shallow to get large vessels in and out of the Port.

Funds for emergency dredging were appropriated in 1991, and the Port undertook to gain more frequent dredging. Following an intensive effort to obtain Congressional and Corps support, the Redwood City Navigation Channel was placed on a 3-year dredging cycle in order to keep up with increasing siltation. 1996 is when the next scheduled maintenance dredging will occur.

Need for Dredging

Continued, on-time dredging of the channel is essential to the continued operations of the Port and marine-related businesses. The Redwood City Navigation Channel is authorized and maintained at a depth of 30 feet. This depth is necessary to provide safe navigation conditions for vessels carrying import/export cargo to their maximum potential. Without dredging, there would be direct economic losses to Redwood businesses and employees, and indirect losses to others who depend upon them.

Environmental Impact

The Army Corps of Engineers has concluded that dredging of the Redwood City Harbor and Channel will not have a harmful effect on wetlands, threatened or endangered species, or historic cultural resources in or next to the channel.

Locally, the Port is an active participant in the Long Term Management Strategy (LTMS) for dredged material disposal. Through this group, the Army Corps of Engineers has brought together regulatory agencies, environmental groups, and marine business interests to produce a comprehensive plan for the disposal of dredged material from San Francisco Bay. This is an ongoing and productive relationship.

On a National level, the Port has worked closely with the Interagency Working Group on the Dredging Process, convened by Secretary of Transportation Federico Pena in October of 1993. The Port testified in "Outreach" hearings in Oakland just last year, and provides input on a regular basis through its Washington, D.C. representative.

Support for WRDA

WRDA '95 simplifies the establishment of environmentally acceptable and economically feasible dredged materials disposal sites through:

- **Restructuring the formula for federal/local sharing of dredging and disposal costs to make "upland" disposal more affordable.** Currently, the Corps of Engineers pays 75% of all "new construction" dredging costs and 100% of the cost of maintenance dredging projects *where sediments are disposed of in the water*. The Corps does not have clear authority to pay any of the costs of acquiring lands or for site preparation for upland or other confined disposal. All such costs in excess of aquatic disposal, therefore, fall on the local sponsor -- most often making upland disposal financially impossible. Upland disposal has become increasingly important as environmental regulation has become more stringent and dredged material is more likely to be deemed unsuitable for aquatic disposal. It is therefore unreasonable, given the Corps of Engineers' clear mandate to maintain federal channels in the national interest, to expect local agencies and port bodies to bear the entire burden of abiding by such regulations and procedures.

- **Encouraging the development of alternative disposal sites which would use "clean" dredged sediments for beneficial projects, such as wetland restoration, levee reinforcement and landfill cover.** Local sponsors would receive "credit" in working out cost sharing formulas for value added through beneficial use projects, such as using dredged sediments for the restoration of historic wetlands. In other words, the "value of restoring an abandoned hayfield to its original state as a wetland would count as part of the Port's 25% contribution.

Passage of WRDA 95 will enhance the close federal/state cooperation necessary for maintaining deep draft ports such as Redwood City, and make it financially feasible for the agencies involved to effectively perform their vital economic and environmental role in the dredge disposal process.

Conclusion

We strongly urge prompt passage of the 1995 Water Resources Development Act (WRDA), and specifically the provision to appropriate $2.6 million for the U.S. Army Corps of Engineers in Fiscal Year 1996, to conduct regularly scheduled maintenance dredging of Redwood City Harbor and Channel.

Mr. RIGGS. Thank you, Mr. Scheeler, and ladies and gentlemen for your patience. We want to again thank all the witnesses today, particularly those from C–MANC, because they had to stay around the longest, to present their testimony to the subcommittee.

I would like to thank the Honorable Chairman for giving me the opportunity to sit in the Chair and preside over the proceedings. And the subcommittee will now adjourn and stand in recess until 2 p.m. this afternoon.

Unless, Mr. Chairman, you would like to make any closing comments.

Mr. MYERS. Just simply to thank all the delegation from California for coming out once again. Most of you have been here many times before, but the value of your testimony is very, very important. When we go to debate on the Floor or in the Senate or even defending it in committee, your testimony is very necessary.

I know it takes time and your own resources to come here, it is a long way out here to the East Coast, but we certainly do appreciate it. And it does help your programs. You have had a great delegation, your congressional delegation has always supported these programs, and more importantly, you have.

So we thank you very much for coming again. We apologize for the extended time here, but you folks come a long way.

Is there anyone that did not get their name put in the record?

Mr. MILLARD. I didn't.

[The statement of Mr. Goodrich follows:]

San Gabriel Basin Water Quality Authority
861 Village Oaks Drive, Suite 105 • Covina, California 91724 • (818) 859-7777 • Fax (818) 859-7788

SAN GABRIEL BASIN DEMONSTRATION PROJECT

Statement by James A. Goodrich, Executive Director
San Gabriel Basin Water Quality Authority

Mr. Chairman and members of the Subcommittee, thank you for providing me an opportunity to submit my testimony on the U.S. Bureau of Reclamation appropriations for Fiscal Year 1996.

The San Gabriel Basin Water Quality Authority (WQA) is requesting $2.5 million in the Bureau's appropriations under authorization of Title XVI of P.L. 102-575 for Fiscal Year 1996. Section 1614 of Title XVI, San Gabriel Basin Demonstration Project, authorizes the Secretary to participate with the WQA, the Metropolitan Water District of Southern California (MWD), the Upper San Gabriel Valley Municipal Water District (USGVMWD), and the Central Basin Municipal Water District (CBMWD) in a comprehensive conjunctive use water supply and groundwater cleanup project in San Gabriel Valley.

Today, the WQA has under construction the first phase of the largest combined conjunctive use and Superfund groundwater cleanup project in the nation. To date, total design and construction costs for this project have exceeded $4 million (1991-1995). During the next three years, the WQA expects design and construction costs to reach $70 million for projects that will produce over 30,000 acre feet of water each year while assisting in the clean up one of the nation's largest Superfund sites. In addition to providing clean drinking water on a continuous basis, the project will provide an additional 75,000 acre feet of water stored underground for use during a drought or an emergency. By providing storage in Southern California, this project provides additional protection of the fragile Bay-Delta ecosystem during periods of low river flows in Central and Northern California.

San Gabriel Valley, California has the dubious honor of being one of the nation's largest Superfund sites, covering an area of over 160 square miles and affecting the drinking water supply of over 1 million people. The Environmental Protection Agency (EPA) placed the San Gabriel Groundwater Basin on the Superfund National Priorities List in 1984. Since that time, EPA has faced the unenviable task of identifying hundreds of "Potential Responsible Parties", or PRPs, while trying to protect drinking water supplies from migrating plumes of contamination that date back to World War II.

To add insult to injury, jobless rates in the Valley have exceeded 13 percent, while many of the

PAUL E STIGLICH, Chairman • MARGARET CLARK, Vice-Chairwoman • ROBERT MARGETT, Secretary • KENNETH R MANNING, Treasurer • JOSEPH C REICHENBE[illegible]rd Member

Valley's businesses are facing financial ruin because of the cost of cleaning up contaminated groundwater as Superfund PRPs. Congressman Esteban Torres recognized this pending disaster early on. His efforts on Capitol Hill over the past several years have sought an elusive solution. However, today, with Congressman Torres' help, we are on the verge of grasping that solution. In the spirit of the Congress' desire to reform the Superfund program, the WQA has brought together local, regional, state, and federal governments with private businesses to solve this complex problem.

California's local, regional, and state governments, together with the business community, have developed a plan which marries the Superfund remedy to a much-needed regional public water supply project. Congressional foresight in passing HR 429 two years ago has allowed the U.S. Bureau of Reclamation to provide the seed money needed to launch this great environmental experiment which promises to set the pattern for solving similar "unsolvable" problems in the future.

As a water supply project, the San Gabriel Basin Demonstration Project will have multiple benefits to the state of California:

- Relieves 30,000 acre feet of demand on the California State Water Project and the fragile Bay-Delta Estuary during the summer peak demand periods.
- Provides about 75,000 acre feet of groundwater storage for use by MWD during drought periods and emergencies (such as after a major earthquake).
- Protects the quality of drinking water for over 1 million residents in the San Gabriel Valley by cleaning up over 700,000 acre feet of contaminated groundwater in the heart of the San Gabriel Superfund Site.
- Helps to relieve chronic unemployment in the Valley caused by the recession of the early 1990s.
- The combined clean up and conjunctive use water supply project provides significant cost savings for all participants, thus helping the local economy, particularly small businesses, recover from deep recession.

The Demonstration Project does not increase consumer costs in the Valley, but it does increase water supply reliability while providing hundreds of new jobs during construction.

The project currently under development by the WQA has received widespread support from community leaders, regulatory agencies, the business community, and environmental interests. This project will succeed where many others have failed because it is built on consensus of all the stakeholders rather than the traditional heavy hand of Superfund.

The Administration has committed up to 25 percent matching funds for the design and construction of this conjunctive use/groundwater clean up project in the San Gabriel Valley. In fiscal year 1995, the Bureau of Reclamation will provide over $1 million. The $15 million in funding sought from the Bureau of Reclamation over the next four years will spawn over $300 million in locally derived funds over the next 25 years. The Demonstration Project is a true public/private sector partnership, with most of the funding coming from sources other than the federal government. The planned contributions over the next several years are as follows:

FISCAL YEAR	LOCAL FUNDS	USBR GRANTS	TOTAL
through 1994	$ 0.5M	$ 0.0M	$ 0.5M
1995	$ 2.5M	$ 1.0M	$ 3.5M
1996	$ 7.5M	$ 2.5M	$ 10.0M
1997	$ 19.0M	$ 6.3M	$ 25.3M
1998	$ 19.0M	$ 6.3M	$ 25.3M
1999-2019	$260.0M	$ 0.0M	$260.0M
Totals	$308.5M	$16.1M	$324.6M

Phase I of this project is now under construction by WQA and will be serving over 3,000 acre feet per year of purified groundwater to local customers by the middle of calendar year 1995. The entire Demonstration Project will be fully operational by the end of 1998, with an average capacity of 30,000 acre feet per year and over 75,000 acre feet of water in underground storage for use during droughts and emergencies.

The San Gabriel Basin Water Quality Authority is on the verge of solving one of the most contentious groundwater contamination problems in the nation in a way that not only cleans up the environment, but provides a more reliable source of water for Southern California and new jobs for the San Gabriel Valley. Every stakeholder wins with this consensus approach to solving this problem. The federal government's continued financial assistance with the Bureau of Reclamation grant funding will guarantee success for this history making project.

Mr. Chairman, thank you again for allowing me to provide testimony to your Subcommittee.

Mr. MYERS. Okay. We will include—we will include you, too. Everyone will have it, and we do appreciate very much.

Yield back to the Chair.

Mr. RIGGS. Thank you again, Mr. Chairman.

The subcommittee stands in recess until 2 p.m.

WEDNESDAY, MARCH 29, 1995.

CENTRAL ARIZONA PROJECT

WITNESSES

HON. BOB STUMP, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

HON. J.D. HAYWORTH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

HON. ED PASTOR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

RITA PEARSON, DIRECTOR, ARIZONA DEPARTMENT OF WATER RESOURCES

GRADY GAMMAGE, PRESIDENT, CENTRAL ARIZONA WATER CONSERVATION DISTRICT

ROGER SEDLMAYR, VICE-MAYOR, CITY OF TUCSON

Mr. MYERS. The committee will come to order. We are pleased this afternoon to have our colleagues from Arizona, the Central Arizona Project particularly. So, Bob, if you could take over at this point to introduce.

Mr. STUMP. Thank you, Mr. Chairman. Let me first tell you how happy we are to be here and congratulate you on your new chairmanship of the subcommittee. And, Mr. Bevill, we are always happy to see you as always.

Mr. MYERS. Doesn't he look good over there?

Mr. STUMP. He sure does. I tell you, I think he looks a little more relaxed, no pressure.

Mr. BEVILL. Much more relaxed over here on this chair. The big problem was just having to swap chairs.

Mr. MYERS. I told him about it.

Mr. STUMP. We do want to acknowledge, Mr. Chairman, the support that this committee has given to us, and the State of Arizona, particularly the Central Arizona Project as you mentioned. It has been a vital part of our ability to meet our critical water needs in Arizona, and we appreciate all the past support, and look forward to working with you.

I apologize, I think Jim Kolbe was supposed to have started off, but he is tied up before the Rules Committee. He has a statement that he will submit for the record. So if it is all right with you, Mr. Chairman, I am going to turn to J.D. Hayworth, one of our new Members from the Sixth District of Arizona.

Mr. MYERS. I can't read what he has got on him, there. I haven't really tried.

Mr. HAYWORTH. Mr. Chairman, that is fine. I will be glad that on that point we may agree to disagree. I am certainly mindful of the wonderful relationship that we have enjoyed, the State of Arizona and this committee, this subcommittee. The Ranking Member, it is good to see, and we appreciate your comments today.

Mr. Chairman, I note with interest, my good friend Eldon Rudd, a former member of this institution, sitting alongside the Chairman today.

Mr. BEVILL. I tried to get him to take his old seat. He wouldn't do it.

Mr. HAYWORTH. Just wouldn't do it. Well, I just wanted to say that realizing the time is short, I wanted to register my support for the President's fiscal year 1996 budget request to continue the work to complete the Central Arizona Project.

And, you know, it is interesting, flying back and forth across the country, we look out the window and we see the pilots invariably mention you will see off to your right or left the mighty Mississippi. We talk so much about that, we have heard so much about the mighty Mississippi, as it is a geographical divide, if you will, in this country. But I think it is safe to say in the West we have the crucial Colorado. And it is so important to the economies of the different States, that it is vital we continue our work on the Central Arizona Project.

Mr. MYERS. Don't they ever tell you off the right you see Indiana?

Mr. HAYWORTH. I always look down there, I see a huge sign that says proud home of John Myers, which makes me feel good as well. But I wanted to thank you and I would ask that my prepared statement be made a part of the record for today's proceeding.

[The statement of Mr. Hayworth follows:]

STATEMENT OF THE HONORABLE J.D. HAYWORTH BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT OF THE COMMITTEE ON APPROPRIATIONS

MARCH 29, 1995

Mr. Chairman, it is certainly an honor to have the opportunity to testify before your subcommittee on behalf of water projects critical to Arizona. Although I am a new member of Congress this year, I am well aware of this committees excellent reputation for being fair to Arizona and bipartisan.

As members of this committee are well aware, the Central Arizona Project (CAP) is essential to meeting Arizona's water supply needs. The Secretary of the Interior declared CAP substantially complete in 1993 and initiated the repayment phase. In the last few months tremendous progress has been made by the Central Arizona Water Control District (CAWCD) and the Bureau of Reclamation in negotiating the terms for repayment of CAP. Credit for success of CAP, thus far, is owed in large part to consistent levels of Congressional appropriations.

There are, however, items of CAP which still require funding and I would ask the committee to favorably consider approving the President's request for $92,725,000. These funds will be used for improvements on Waddell Dam, continued construction on the Roosevelt Dam enlargement, replacing damaged siphons, continuing studies of the Tucson aqueduct, designing and constructing Indian delivery systems, and continuing construction of sulphur dioxide scrubbers for the Navajo generating system.

I would also like to request the committees support for two Army Corps of Engineer projects important to my district. First, I would ask that the committee add $50,000 to the Corps' FY 1996 request of $400,000 for completion of the reconnaissance study and initiation of the feasibility phase for the North Scottsdale Drainage, Gila River and Tributaries flood control project. The Corps' Los Angeles District office is now saying that they need the additional $50,000 to complete the reconnaissance study. I would also ask that the committee encourage the Corps to take advantage of the data that the city of Scottsdale has collected to save time and money on their study.

Second, I am requesting the committee fund a reconnaissance study for the Rio de Flag floodplain in Flagstaff, Arizona. As a result of the Federal Emergency Management Agency designating much of Flagstaff's downtown and southside areas as a Special Flood Hazard Area, Flagstaff is prevented from moving forward with new development or important redevelopment projects. The city of Flagstaff is aware of the cost sharing requirements associated with planning and constructing this project and is a willing partner.

Again Mr. Chairman, I want to thank you and Representative Bevill for all of your support you have given Arizona over the years and for the opportunity to testify today.

Mr. MYERS. Without objection.

Mr. STUMP. Mr. Chairman, I neglected to ask to submit my statement for the record in order to save a little time, if you would, please.

Mr. MYERS. Thank you, Bob. Each of your prepared statements will be placed in the record, and you may summarize, if you would like, and proceed, please.

[The statement of Mr. Stump follows:]

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Subcommittee on Hospitals and Health Care

National Security Committee
Vice Chairman
Subcommittee on Military Installations
Subcommittee on Military Procurement

Republican Steering Committee

Statement of Congressman Bob Stump
before the
House Energy and Water Subcommittee
March 29, 1995
regarding FY96 Water-Related Project and Programs Affecting the State Of Arizona

Mr. Chairman, thank you for the opportunity to submit testimony in support of FY96 funding requests for Bureau of Reclamation and Corps of Engineers ongoing projects in the State of Arizona. The interest and support of this Subcommittee in the past has been a critical element in our abilities to meet the diverse water needs of a growing State, in particular the Central Arizona Project, and we appreciate your continued willingness to favorably consider our requests.

Each year that we meet with the Subcommittee, Mr. Chairman, we are able to testify to yet more progress in meeting the goal of delivery of Central Arizona Project water, and the continuing statewide efforts to not only work together in addressing our State's water needs, but also working with our federal partners. This year is no different. The Governor has been an effective leader in addressing the matters of utilization of CAP water and repayment of our obligation to the federal government. The Arizona Legislature has enacted measures which address the recommendations of the Governor's Central Arizona Project Advisory Committee regarding utilization, repayment and support for ongoing Indian water rights settlements. And, the adoption by the Central Arizona Water Conservation District of a water pricing structure with balances the needs of agriculture and our cities has been key.

The FY96 request for the Bureau will allow not only continued construction progress, but will also allow for continued progress on the Navajo Generating Station scrubber project and the pre-construction activities for the Tucson terminal storage project, both of which are key components to the CAP, safety of dams work and salinity control. In addition, because of the devastation Arizona has experienced in recent years because of flooding, when considering the FY96 request for Corps of Engineers projects, I hope that the Subcommittee will favorably consider the funding needs for flood control studies and projects, including the Alamo Lake study.

Mr. Chairman, again, our thanks for your interest in Arizona and our work with the federal government in addressing the water needs of our State, and we look forward to working with the Subcommittee under your leadership.

Mr. STUMP. Now, Mr. Chairman, I will like to introduce to you Rita Pearson, who is the head of our Arizona Department of Water Resources. She is here representing Governor Fife Symington, who had to remain in Arizona because of the closing days of the legislature. She's going to give his statement.

Ms. PEARSON. Thank you, Mr. Chairman, Members of the committee. It is a pleasure to be here today. And thank you for the opportunity to speak on behalf of Governor Symington to discuss the appropriations for water and energy projects which affect the State of Arizona so critically.

My comments to you today will be brief. I have a detailed written testimony and, as you have suggested, have submitted it for the record for the committee. And I have also been asked to submit the written testimony of Mr. Bill Schrader, who is President of the Salt River Project, and the written testimony of the Southern Arizona Water Resources Association.

Let me begin by stating that the appropriations under consideration by this subcommittee are of vital importance to the State of Arizona. Construction of the water supply and flood control facilities is essential to support the growth of the State's population and economic development now occurring at such a rapid rate across the State.

There has been some significant activity related to the Central Arizona Project since Governor Symington reported to this subcommittee last year. The Arizona State Legislature passed and the governor signed into law measures that support the CAP. The legislation accomplished several very important objectives.

First, it established an environmental development fund to help pay for riparian enhancement and restoration projects in Arizona. It authorized the continuation of the 4 cent ad valorem tax levied for groundwater demonstration projects, and also made those funds available for the repayment obligations or not CAP.

And finally, it funded a facilitator position at the Department of Resources to support ongoing Indian water right settlement discussions in the State.

The legislation demonstrates the strong and united support in Arizona for the successful operation of the Central Arizona Project. Perhaps the most significant activity involving the CAP this year was the landmark negotiation to determine Arizona's repayment obligation for the construction of the project.

As you know, in October of 1993, Secretary Babbitt declared the project substantially complete, and with that initiated the repayment phase of the Central Arizona Project. Through the repayment negotiations between CAWCD and the Bureau of Reclamation, they have sometimes been difficult, but they have also been highly productive. And on behalf of Governor Symington, I am pleased to report to you that the CAWCD, the operator of the project, and the Federal Government, have reached substantial closure on a negotiated agreement in principle over the repayment dispute arising out of the 1988 master repayment contract.

This agreement resolves the amount of Arizona's capital repayment obligation and fixes a schedule for that obligation. It also sets aside a significant amount of water for resolution of Indian settlement claims within the State, and creates a mechanism which gives CAP Indian communities the opportunity to provide input to the Central Arizona Water Conservation District Board regarding proposed CAP decisions that may affect those Indian communities.

For Arizonans, this agreement culminates almost a century of hard work and planning. The canal is substantially complete. Water is flowing in the aqueducts, and we have assurance that Arizona will have a secure, renewable surface water supply for generations to come.

Now, Arizona has begun fulfilling its obligation to repay the Federal Government for its share of the project's construction costs. The success of the CAP would not have been possible without consistent levels of congressional appropriations which have allowed the Bureau of Reclamation to maintain its construction schedule. These appropriations have fulfilled the congressional commitment made to the CAP back in 1968, when the project was first authorized, and then renewed in 1986 when a comprehensive cost-sharing agreement was executed among several entities in Arizona and the Department of Interior.

The written testimony that Governor Symington is submitting to you today asks for this subcommittee's continued support of funding to make safety of dam modifications on dams upstream from Phoenix, on the Salt and the Verde River systems. It is important that this work be completed to assure the safety of Roosevelt Dam and others, and to provide needed water conservation and flood control storage for central Arizona, which serves a population of over 2 million people today.

The Bureau of Reclamation has a number of other projects in Arizona, and although they are smaller than CAP or safety of dams, they are no less important. Governor Symington urges your support of all of the Bureau projects in Arizona.

In addition, the Corps of Engineers has a number of projects that include funding for construction of the Clifton, Holbrook, Nogales Wash and Rilliot River flood control projects. Two years ago, Arizona experienced devastating floods on the Gila River system, and this year we are again experiencing severe levels of flooding, and there are certain to be flood occurrences in the future. For this reason, it is important to continue to have an active flood control program in Arizona, and the projects underway by the Corps of Engineers will add significantly to our flood control capabilities.

Mr. Chairman, the testimony I bring to you today is a joint effort of many interests in central and Southern Arizona, who support the Central Arizona Project. On behalf of Governor Symington, I thank the subcommittee for the opportunity to appear before you today, and thank you for your continuing support of water resource development projects in Arizona.

Thank you.

[The statement of Ms. Pearson follows:]

STATEMENT OF
THE
STATE OF ARIZONA
BEFORE THE
HOUSE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

SUBMITTED BY:

GOVERNOR FIFE SYMINGTON

STATE OF ARIZONA

MARCH 29, 1995

IN SUPPORT OF FISCAL YEAR 1996 APPROPRIATIONS

FOR

THE BUREAU OF RECLAMATION FOR THE CENTRAL ARIZONA PROJECT

INCLUDING SAFETY OF DAMS FEATURES,

COLORADO RIVER WATER QUALITY IMPROVEMENT PROGRAM,

AND OTHER WATER RELATED PROJECTS AND PROGRAMS

AND FOR

CORPS OF ENGINEERS FLOOD CONTROL PROJECTS IN ARIZONA

This testimony submitted on behalf of the people of the State of Arizona asks for continued support of funding for the various water related projects and programs which affect the State. Construction projects underway by the Bureau of Reclamation include: the Central Arizona Project; safety of dams work; and the Colorado River Water Quality Improvement Program. Construction projects by the Corps of Engineers include the Clifton, Holbrook, Nogales Wash, and Rillito River Flood Control Projects. Additionally, the testimony addresses the various planning and operation and maintenance programs by both the Bureau of Reclamation and Corps of Engineers. This testimony supports the levels of funding proposed by the President for the projects and programs under consideration by this Subcommittee and, in some cases, asks for consideration of increases.

CENTRAL ARIZONA PROJECT

The Central Arizona Project (CAP) continues to be the highest priority water supply project in Arizona. The importance of this project for the future of the State of Arizona cannot be overstated. The reliable delivery of Colorado River water to users in central and southern Arizona is essential to meet the demands of an ever increasing population.

There has been some very significant activity related to the Central Arizona Project since I appeared before this Subcommittee last year. I reported to you at that time that I had appointed a 34 member Governor's Central Arizona Project Advisory Committee to investigate methods that will enable us to better utilize our CAP supplies, and that some of the Committee's recommendations were being considered by the Arizona Legislature.

Today, I am pleased to report to you that the state legislature passed these measures in support of the Central Arizona Project, and I signed them into law. This legislation accomplished the following goals: established an environmental development fund to help pay for riparian enhancement and restoration projects in Arizona; authorized the continuation of an existing four cent ad valorem tax levied for groundwater demonstration projects and the making of those funds available for the repayment of the CAP as well as continuing recharge programs; and funded a facilitator position to support ongoing Indian water right settlements.

In addition, the Central Arizona Water Conservation District Board adopted a CAP water pricing structure that will allow continued agricultural use of CAP water (which assists in the reduction of groundwater pumping) while not harming municipal interests in the state. This action was supported by the Advisory Committee.

As you can see, our actions continue to show a strong and united support for the successful operation of the Central Arizona Project.

The most significant activity involving the CAP this past year was the landmark negotiations to determine Arizona's repayment obligation for the construction of the Central Arizona Project. In October 1993, the Secretary of the Interior declared the Central Arizona Project substantially complete and initiated the repayment phase of the CAP. At that time, the official cost allocation identified a difference of over $400 million between Reclamation's reimbursable cost and the CAWCD contractual repayment obligation. Though the repayment negotiations between CAWCD and the Bureau of Reclamation have sometimes been difficult, they have also been highly productive, and I am pleased to report to you that the CAWCD and the federal government have reached substantial closure on a negotiated agreement in principle. This agreement resolves the amount of Arizona's repayment and fixes a schedule for that obligation. It also sets aside a significant amount of water for resolution of Indian water claims within the state, and creates a a mechanism which gives CAP Indian communities the opportunity to provide input to CAWCD regarding proposed CAP decisions affecting Indian communities.

For Arizonans, this agreement culminates almost a century of hard work and planning. The canal is substantially complete, water is flowing in the aqueducts, and we have assurance that Arizona will have a secure renewable surface water supply for generations to come. Now, Arizona has begun fulfilling its obligation to repay the federal government for its share of the Project's construction costs.

The success of the Central Arizona Project would not have been possible without consistent levels of Congressional appropriations which have allowed the Bureau of Reclamation to maintain its construction schedule for the Project. These appropriations have fulfilled the Congressional commitment made in 1968 when the Central Arizona Project was authorized and renewed in 1986 when a comprehensive cost sharing agreement was executed among several entities in Arizona and the Department of the Interior. We appreciate your past support.

Regarding CAP related activities that continue to require funding, I believe that the budget recommendations are satisfactory. For FY 1996, the budget from the Lower Colorado River Basin Development Fund for Central Arizona Project facilities is $92,725,000. These funds will support construction activity principally focused in six areas: continued replacement of damaged siphons, awarding facility relocations and site improvement contracts for Waddell Dam, continued construction on enlarged Roosevelt Dam, continued studies associated with the Tucson aqueduct, continued design and construction of Indian delivery systems, and the continued construction of sulfur dioxide scrubbers for the Navajo Generating Station.

The budget for the Hayden-Rhodes Division of the Central Arizona Project Aqueduct covers a number of activities. The most important activity is the continued replacement of siphons. The Central Arizona Project now provides water for a number of cities in central and southern Arizona. That supply must be reliable with a minimum chance of interruption. It is essential that faulty siphons on the aqueduct be replaced as soon as possible.

For the Regulatory Storage Division of the Central Arizona Project, the bulk of work will be on expansion of the storage capacity of Roosevelt Dam. In addition, completion contracts will continue for New Waddell Dam. The Roosevelt Dam enlargement is the last major feature of the storage facilities of the Project. It is important that this work be completed to assure the safety of the dam and to provide needed water conservation and flood control storage for central Arizona which services a population of more than two million people. Until the work is completed on the dam, the water conservation capabilities are restricted to less than what was available prior to construction. Floods over the past several years demonstrate the continuing need for additional water conservation and flood control space on the Salt River system.

The budget for the Indian water delivery and distribution systems covers a number of ongoing projects intended to assure that these distribution systems are constructed so that Indian communities with contracts for Central Arizona Project water can put this renewable surface water supply to use. One of the key water management objectives in Arizona is to put as much CAP water to use as possible. The Indian communities are major contractors of the supply and must be provided with the facilities to assure maximum use of this renewable water supply.

The Navajo Generating Station near Page, Arizona is an important feature of the Central Arizona Project. Approximately 24 percent of this power plant is dedicated to the Central Arizona Project for the purpose of providing power to the 14 pumping stations along the three aqueducts on the Project. To meet visibility requirements of clean air standards, the Department of the Interior, the Environmental Protection Agency, the Salt River Project, the State of Arizona and the Grand Canyon Trust agreed that sulfur dioxide scrubbers, which reduce sulfur dioxide to less than 10% of what is allowable for most states, would be installed at the generating station. A total of $20,300,000 is budgeted in FY 1996 for the federal government's share of this effort.

In its report on the Energy and Water Development Bill for FY 1993, this Subcommittee expressed its concern that the Secretary of the Interior provide a reliable supply of municipal and industrial (M&I) water to southern Arizona users. The Subcommittee indicated that consistent with the terms of the Plan 6 Cost Sharing Agreement, the delivery reliability of this supply should be equivalent to that provided for other CAP M&I water users. The Subcommittee directed the Bureau to continue working with the affected water users in southern Arizona to resolve this issue. To address this concern, the Bureau of Reclamation reached a preliminary agreement with southern Arizona's water users to recommend the construction of a 15,000 acre foot terminal storage reservoir near Tucson, Arizona. Also, the agreement includes a major local committment by the City of Tucson to construct associate underground storage facilities. The FY 1996 budget contains approximately $2,850,000 for pre-construction activities for this storage feature and approximately 3,662,000 for the Tucson division of the CAP. I also request an additional $3,000,000 for the terminal storage facility so that the Bureau can begin site acquisition and work to its full capability in FY 1996. Terminal storage is essential for Tucson to fully utilize its CAP allotment, and I encourage this subcommittee to appropriate these additional funds so this important feature can be completed as quickly and as efficiently as possible.

SAFETY OF DAMS

The FY 1996 budget for the Bureau of Reclamation continues to fund construction activities for safety of dams work in Arizona. Four dams located on the Salt and Verde Rivers have safety deficiencies and are located upstream from the Phoenix metropolitan area with its two million plus residents. The comprehensive Plan 6 Cost Sharing Agreement executed in 1986 provides that the Salt River Project will pay for a portion of the necessary repairs on these dams.

Safety of dams construction work is scheduled for Horseshoe and Bartlett Dams on the Verde River. A total of $9,188,000 is budgeted for these two dams. Additionally, $29,411,000 of the work scheduled for enlargement of Roosevelt Dam is for safety of dams purposes. The Salt River Project will contribute approximately $5,899,000 to these efforts.

In addition to the work on the Salt and Verde River dams pursuant to the Plan 6 Cost Sharing Agreement, construction is scheduled to continue on Coolidge Dam, a feature of the San Carlos Irrigation Project. This dam, which is owned and operated by the Bureau of Indian Affairs, has been identified as top priority among those in the United States needing repairs to insure the safety of the people and property below the dam. We are pleased to see that funds ($974,000) continue to be scheduled for repairs of this facility.

It is essential that needed safety of dams funds be appropriated to ensure that the construction is completed on time and the concern over the integrity of all of these structures can be eliminated.

OTHER BUREAU OF RECLAMATION PROJECTS

The Colorado River constitutes the largest source of long-term renewable surface water supplies available to the State of Arizona. With full use of the Central Arizona Project, the Colorado River will provide over 60 percent of Arizona's long-term water supply. Therefore, Arizona is very concerned about the future water quality of this essential supply and supports the Bureau of Reclamation's ongoing Colorado River water quality improvement program authorized under Title II of the Colorado River Basin Salinity Control Act. Title II established a program to respond to salinity control needs of Colorado River water users in the United States in compliance with the Clean Water Act. This program is cost shared, with the states providing 25 to 30 percent of the cost of project facilities and operation and maintenance costs. The budget presented to Congress asks for $13,705,000 to fund the Bureau of Reclamation's projects in the salinity control program.

Arizona and the other Colorado River basin states are concerned about this level of appropriation. The Bureau of Reclamation has identified a total need of $18,600,000 to proceed with the plan of implementation, which would achieve the goal of not exceeding established numeric criteria and threatening associated water quality standards. Legislation has been introduced to alleviate cost ceiling concerns expressed last year. We encourage this Subcommittee to appropriate the needed $18,600,000. We support the $2,300,000 funding request for the Yuma Desalting Plant Operation.

Arizona is pleased to see that the budget for the Bureau of Reclamation contains $2,170,000 for endangered species conservation and recovery in the Lower Colorado River Region. A March 1994 decision by the U.S. Fish and Wildlife Service designated much of the Lower Colorado River Basin as critical habitat for endangered fishes. Arizona, California, and Nevada are working with the U.S. Fish and Wildlife Service, the Bureau of Reclamation, and other interested parties, to address these issues in a manner which will minimize potential impacts to water and power users in the Lower Colorado River Basin. The Lower Basin states, Fish and Wildlife Service, and Reclamation are pursuing the development and implementation of a memorandum of agreement, which may lead to the development of a program to address these issues. Because of its extensive responsibility for operation of the facilities on the River and the Secretary's authority to contract for the uses of that supply, it is essential that the Bureau of Reclamation be a major participant in the development of this program.

CORPS OF ENGINEERS PROJECTS

In addition to the activities of the Bureau of Reclamation, Arizona has several ongoing Corps of Engineers' projects. Arizona is extremely pleased that the President's budget includes funding for continued construction for the Clifton, Holbrook, Nogales Wash and Rillito River flood control projects. A total of $8,130,000 is included in the budget for these projects.

Two years ago, Arizona experienced devastating floods on the Gila River system. This year, we are again experiencing severe levels of flooding. It is clearly important for us to continue to have an active flood control program in the state. The projects underway by the Corps of Engineers will add significantly to our flood control capability. It is critical that the United States continue funding these essential projects.

In addition to the construction, operation and maintenance activities of the Corps of Engineers, general investigation studies must also continue to be funded. Studies necessary to be funded include the Alamo Lake study; the Gila River, Gillespie Dam to Yuma, Arizona study; the Rio Salado, Salt River, Arizona study; and the Tucson Drainage Area study. The budget recognizes the need for the Gila River and Tributaries, North Scottsdale Drainage Area Study and the Gila River, Tortolita Drainage Area, Arizona study but did not adequately fund these efforts. We ask for an additional $50,000 for the North Scottsdale study and an additional $100,000 for the Tortolita Drainage Area study. We also ask for $700,000 to initiate a Reconnaissance level study of the Rio De Flag area and an additional $550,000 for a water conservation Reconnaissance Study of the Tat Momolikat Dam area.

In summary, the State urges this Subcommittee's continued support for funding for water-related projects in Arizona. The Central Arizona Project with related safety of dams and Indian water distribution system needs is at the top of the State's list with a total request of $122,136,000. Additionally, the budget for the Colorado River Water Quality Improvement Program must be continued and additional funds provided if possible. The Corps of Engineers' budget is also necessary for continued flood control activities in the state with an additional request of $1,400,000 to provide funding for four needed studies. Thank you for your attention to these very important matters.

Testimony
On Appropriations for Fiscal Year 1996
Before the United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development

Mr. William P. Schrader

President

Salt River Project

March 29, 1995

Mr. Chairman:

My name is William Schrader. I am President of Salt River Project (SRP) located in Tempe, Arizona. SRP comprises both the Salt River Project Agricultural Improvement and Power District and the Salt River Valley Water Users' Association. I am pleased to have the opportunity to submit this testimony on SRP's behalf.

Founded in 1903, SRP is the oldest multi-purpose reclamation project in the United States. It is the nation's third-largest public power utility and Arizona's largest water supplier. SRP is proud of its role in contributing to central Arizona's robust economy and its outstanding quality of life.

Many of the programs, projects, and activities within this subcommittee's jurisdiction directly affect SRP, its water and power customers, and the State of Arizona.

Through the years, this subcommittee has helped guide the wise and safe development of our nation's water and power resources, including those located -- like SRP's -- in arid regions of the West.

Your vision and support have made possible many initiatives to create a habitable and prosperous desert Southwest. This subcommittee has been a key partner in the development of our region, and we thank you for your efforts and congratulate you on your accomplishments.

As a result of last November's election results, Congress, in general, and this subcommittee, in particular, have undergone profound changes.

At SRP, we are keenly aware of the historic budgetary decisions confronting the 104th Congress, and also of the pressing time constraints imposed upon your actions. As a result, I will restrict my testimony to the two issues most critical to Salt River Project, and respectfully seek your favorable consideration of each.

Safety of Dams

Of principal interest to SRP at this time is the appropriation for fiscal year 1996 of certain Safety of Dams projects managed by the Bureau of Reclamation.

The six reservoirs within the SRP water supply and delivery system are maintained not only to furnish water, but also to realize conservation, hydroelectric power, recreational value, and flood control.

As evidenced earlier this year by devastating floods in California and severe floods in Arizona, particularly in the Verde River Valley, the need for improved flood control and sound dam construction along America's urban water ways is imperative.

One way this goal is being realized is through the work of the Reclamation Safety of Dams Act. As authorized by the 1984 amendments to this Act, four of the six dams on the SRP system have undergone, or are now undergoing, modifications to strengthen and, in some cases, improve their capacity to control floods.

I am pleased to report that modifications on two of the four dams on SRP's system are substantially complete. All modifications to Stewart Mountain Dam on the Salt River were completed in April 1992, and structural modifications to Horseshoe Dam on the Verde River were completed this past January.

The projects for which I seek appropriations today are nearing completion after several years of construction. They will substantially enhance the structural integrity of dams located on the SRP system. They will improve the physical security of the people, property, and natural resources of the Phoenix metropolitan area, as well as help ensure a safe and reliable surface water supply for the Valley of the Sun for generations to come.

Safety of Dams construction is well under way on the two additional dams in need of modification. To continue construction on these projects, the Bureau of Reclamation has requested for fiscal year 1996 $8,085,000 for Bartlett Dam and $29,411,000 for Theodore Roosevelt Dam. The Bureau has requested $1,103,000 for revegetation and environmental mitigation work following the completion of structural modifications to Horseshoe Dam.

Funding at these levels should be sufficient to allow the Safety of Dams construction work to proceed on schedule. SRP will continue to meet its cost-sharing commitment made pursuant to the Safety of Dams Act.

SRP urges the subcommittee to recommend the full amount of the Administration's budget request for each of these projects in fiscal year 1996.

Navajo Generating Station

SRP is pleased to report that participants in the Navajo Generating Station (NGS) broke ground last August on the plant's sulfur dioxide scrubber project. Construction is proceeding on schedule and according to budget.

Four utilities and the Federal government -- through the Bureau of Reclamation -- have interests in NGS, which is located in Arizona on the Navajo Nation near the city of Page. The Bureau of Reclamation owns a 24 percent share of the plant for the purpose of meeting the pumping requirements for the Central Arizona Project. SRP serves as plant manager.

To meet clean air standards imposed by the Congress through passage of the Clean Air Act and promote increased visibility at the Grand Canyon National Park, the Bureau of Reclamation, the Environmental Protection Agency, the State of Arizona, SRP, and the Grand Canyon Trust agreed in 1991 that sulfur dioxide scrubbers would be installed at NGS. That agreement was approved by President Bush in September 1991 at the Grand Canyon.

SRP requests that, in accordance with the Navajo Project Participation Agreement, the subcommittee recommend the full amount of the Administration's budget request of $20,300,000 for the Bureau's share of NGS capital improvements.

These funds will provide the federal government's fiscal year 1996 share of the cost of installing the scrubbers and other necessary capital additions to NGS and associated transmission systems.

SRP also wishes to express its continued support for the Central Arizona Project (CAP). Arizonans understand that the CAP represents an important link to the state's future. Water is a scarce and precious resource in Arizona's desert climate, and the CAP could help realize the state's hopes for economic security and the preservation of our unique quality of life.

Conclusion

Mr. Chairman, in conclusion, SRP understands that the subcommittee faces serious budgetary constraints in fiscal year 1996 and must make hard choices in allocating available resources among competing priorities. We have taken this into consideration in choosing to limit our testimony to just two important issues.

It bears emphasis that these are the two most critical appropriations needs of the Salt River Project at this time, and that both issues further national goals and policies and merit your favorable consideration.

Thank you for the opportunity to submit this testimony.

southern
arizona
water
resources
association

SAWARA

Southern Arizona Water Resources Association

Statement to:

The House Committee on Appropriation Subcommittee on Energy and Water Development
March 29, 1995

The Southern Arizona Water Resources appreciates this Committee's past financial support over the last two decades toward the completion of the Central Arizona Project. The end is in sight. The major system is complete, but the final pieces need to be put in place. The project is able to deliver water to Tucson and those at the terminus of the system.

The issue of particular concern to our Tucson community is the construction of terminal storage to ensure reliability of delivery of CAP water to customers when the aqueduct is down for repairs and emergencies. This is the year of acquisition of land for terminal storage. An addition to the FY 1996 budget of $3 million is necessary for that acquisition, and we ask that you seriously consider this request.

The total budget request for the Project of $122,136,000 is critical toward final completion of the Project. But we are pleased that this amount is $41.5 million less than last year and is decreasing substantially each year as the project nears total completion.

Arizona, through the Central Arizona Conservation District (CAWCD), has begun repayment of the Project. The current agreement between the Bureau of Reclamation/Dept. of Interior and the CAWCD gives greater security to this repayment process.

As we complete this water lifeline so critical to Arizona's future, your continued support is vital and very much appreciated.

Sharon B Megdal
Sharon B. Megdal, President

Marybeth Carlile
Marybeth Carlile, Executive Director

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Mr. STUMP. Mr. Chairman, we have Mr. Pastor with us, who takes us where Mo Udall left off, would Like to make his testimony now.

Mr. PASTOR. Thank you, Chairman Myers, and Mr. Bevill, for once again allowing the Arizona delegation and representatives from the State to appear before the subcommittee today in support of Central Arizona Project and other important water related projects in Arizona.

Mr. Chairman, I know that this is hardly the first time both you and Mr. Bevill have heard testimony from the State and the Central Arizona Water Conservation District regarding the CAP. So I won't elaborate on the crucial role that CAP does and will continue to play in Arizona's future.

You and the subcommittee have provided invaluable support for this project over the course of many, many years. I know that I speak for all of us here when I express my appreciation for your efforts on behalf of the CAP, and other Arizona water-related projects.

I am happy to report that great headway has been made in many of the difficulties that the CAP is facing. Most importantly, negotiations between the CAWCD and the Department of Interior have produced an agreement in principle on the amount, terms and conditions of Arizona's repayment obligation. This is indeed a momentous achievement in the decades-long dream to bring Colorado River water to central and Southern Arizona.

Chairman Myers, I am here to fully support the administration's budget request for the CAP and safety of dam works, as well as the testimonies of the State of Arizona, the CAWCD and the City of Tucson. I do have one request, however, for an additional $3 million for terminal storage activities in Tucson, Arizona.

The Bureau's budget contains $2.85 million for preconstruction activities related to the terminal storage project. The additional 3 million will allow the Bureau to exercise its full capacity—and acquire the land for the terminal storage site.

As you know, in 1992, the Bureau worked with affected water users in Southern Arizona and reached a preliminary agreement to recommend a 15,000-acre-foot terminal storage reservoir near Tucson, Arizona, to provide the needed and the guaranteed system reliability. The City of Tucson and other water users are relying on these facilities as they convert their water systems from underground systems to CAP water.

If the $3 million is not appropriated, construction of the reservoir could be delayed for more than a year. This delay would make it increasingly difficult for Tucson to progress further towards direct delivery of CAP water and will severely complicate the city's long-range water plans. I understand the many constraints that this committee is operating under, and I greatly appreciate your consideration of the request that is vital to the effective use of CAP water in Southern Arizona.

Thank you again, Chairman Myers, and Mr. Bevill, for your long support of Arizona's water needs and your consideration of this request.

Mr. MYERS. Thank you.

[The statement of Mr. Pastor follows:]

STATEMENT OF THE HONORABLE ED PASTOR
ARIZONA - SECOND DISTRICT
before the
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
Committee on Appropriations

March 29, 1995

Thank you Mr. Chairman and Mr. Bevill for, once again, allowing me to appear before the Subcommittee today in support of the Central Arizona Project (CAP) and other important water-related projects in Arizona.

Mr. Chairman, I know that this is hardly the first time both you and Mr. Bevill have heard testimony from the State and the Central Arizona Water Conservation District (CAWCD) regarding the Central Arizona Project (CAP), so I will not elaborate on the crucial role the CAP does and will continue to play in Arizona's future. You and the Subcommittee have provided invaluable support for this project over the course of many, many years. I know I speak for all those here when I express my appreciation for your efforts on behalf of the CAP and other Arizona water and flood control projects.

I am happy to report that great headway has been made in many of the difficulties that the CAP is facing. Most importantly, negotiations between the CAWCD and the Department of Interior have produced an agreement in principal on the amount, terms, and conditions of Arizona's repayment obligation. This is indeed a momentous achievement in the decades long dream to bring Colorado River water to central and southern Arizona.

Mr. Chairman, I am here to fully support the Administration's budget request for the Central Arizona Project and Safety of Dams work, as well as the testimonies of the State of Arizona, the CAWCD, and the City of Tucson. I do have one request, however, for an additional $3 million for terminal storage activities in Tucson, Arizona. The Bureau's budget contains $2.85 million for pre-construction activities related to the terminal storage project. The additional $3 million will allow the Bureau to exercise its full capability and acquire land for the terminal storage site.

As you may know, in 1992, the Bureau worked with affected water users in southern Arizona and reached a preliminary agreement to recommend a 15,000 acre-foot terminal storage reservoir near Tucson, Arizona to provide the needed, and guaranteed, system reliability. The City of Tucson and other water users are relying on these facilities as they convert their water systems from underground to CAP water.

If the $3 million is not appropriated, construction of the reservoir could be delayed for more than a year. This delay will make it increasingly difficult for Tucson to progress further toward direct delivery of CAP water and severely complicate the City's long-range water planning.

I understand the many constraints under which the Subcommittee is operating, and greatly appreciate your consideration of this request that is vital to effective use of the CAP in southern Arizona.

Mr. Chairman, I also want to express my appreciation for your past support of a variety of Corps of Engineers projects in Arizona. I have a few requests that will enable a number of these projects to undergo feasibility studies.

Rio Salado, Phoenix and Tempe

Mr. Chairman, I request that the following language be included in the FY 1996 Energy and Water Development Appropriations bill:

> The Secretary of the Army, acting through the Chief of Engineers, is directed to continue feasibility studies of Environmental restoration and associated recreation measures at the cities of Tempe and Phoenix, Rio Salado, Salt River, Arizona. Funds of $300,000 are provided for this purpose.

The Reconnaissance Study for the project has been completed and the Corps has determined that there is a federal interest and has requested $300,000 in FY 1996 to initiate a feasibility study. The above language articulates and reiterates the Administration's request, and I would ask for its inclusion in the bill.

Tortolita Drainage Area North Scottsdale Flood Control Studies

Additionally, I request that $100,000 and $50,000 be appropriated for feasibility studies for the Tortolita Drainage Area Study and the North Scottsdale Flood Control Study, respectively. Money is included in the Corps' budget request to complete the reconnaissance phases of both projects, but not to initiate feasibility studies. The Corps expects both projects to proceed to the feasibility phase, and the additional funding would prevent any delays.

Gila River Indian Community Small Reclamation Projects Act Loan Reimbursement

I am also requesting $1,842,205 as an add-on to the Bureau of Reclamation's budget to reimburse the Gila River Indian Community for the costs incurred by the Gila River Farms for certain construction on the Sacaton Ranch. Authorization for this appropriation is contained in P.L. 103-435.

The money would reimburse costs incurred for construction allocated to irrigation on the Sacaton Ranch that would have been reimbursable if such construction had been performed by the Bureau under Section 402 of the Colorado River Basin Project Act (43 U.S.C. 1542).

Mr. Chairman, the reimbursement of this loan is critical to the Farm's financial health. Congress acknowledged that the Community is indeed entitled to this reimbursement, and both the Farms and the Community have struggled for several years to obtain this money.

Support for Various Department of Energy Budget Requests

Mr. Chairman, I also ask that the Subcommittee continue to support appropriations the Administration's budget request for Uranium Enrichment Decontamination and Decommissioning (D&D) fund established under Title XI of the Energy Policy Act of 1992 (P.L. 102-486). In particular, I am supprotive of the $42 million identified within the D&D request for the reimbursement of claims made by active uranium and thorium mill site licensees for the portion of their remediation costs for tailings attributed to sales made to the Federal government. Authorization for this reimbursement is in Title X of P.L. 102-486.

The D&D fund and the talings reimbursement provisions have broad based support among a vast arry of organizations, and I urge the Subcommittee to fully fund these important environmental remediation programs.

Finally, I express my full support for the Administration's budget request for renewable energy and alternative fuels. As you know, the Administration has requested a 8% increase from FY 1995 for solar and renewable energy activities. I know the Subcommittee has supported these initiatives in the past, and it is my hope that you will continue to do so for fiscal year 1996. Solar and wind energy hold great promise for being an important part of our nation's energy mix, and I believe it is in our national interest to see that these industries succeed.

As cities across the nation attempt to improve their air quality, emphasis is being placed on reducing harmful emissions from automobiles. The Administration's budget for alternative fuels will help these efforts to make our nation's air cleaner. The Clean Cities program is one example of how federal dollars can be used to help local governments meet fleet alternative fuel requirements, and I encourage the Subcommittee to continue its support of this and other alternative fuels initiatives.

Mr. Chairman, I know that this year you will have a particularly difficult task in formulating the budget for the Department of Energy, the Bureau of Reclamation, the Corps of Engineers, and the other agencies under the purview of the Subcommittee. I thank you for the past support for the programs and projects you and the Subcommittee have provided, and I appreciate the opportunity to present to you these important requests.

Mr. STUMP. Mr. Chairman, we are pleased to have with us today the newly elected President of the board of the CAWCD, Mr. Gary Gammage.

Mr. GAMMAGE. Thank you, Mr. Chairman, Mr. Bevill. It is a pleasure to be here, and to thank you for the investment this committee has supported in the State of Arizona over the years. A year ago, we reported to you that the Secretary of the Interior had declared the project substantially complete and that it was time for the repayment process to commence, even while certain features of the project were still being finalized.

To date, we, the Central Arizona Water Conservation District, which is the three-county entity created to repay the appropriate cost portion of the project, and to operate the project, to date we have paid approximately $95 million in repayment for that investment. And we will shortly reach the point next year or perhaps the year after where we send more money back here for the CAP every year than you need to send us. We are glad to be to the point where that will occur, and we look forward to that happening.

Mr. MYERS. We do, too.

Mr. GAMMAGE. In the past year, we have worked diligently with the Department of the Interior and the Bureau of Reclamation to reach the agreement which Ms. Pearson referenced earlier, and which Mr. Pastor spoke about as well. That has been an arduous process, but earlier this year, in February, our negotiators and those from the United States reached an agreement on the principles which will guide the repayment and the future operation of the Central Arizona Project.

I would like to highlight very briefly what four of those principles are of agreement.

First, we agreed on a cost ceiling for CAP completion, which will address concerns about potential cost increases and which will fix our repayment obligation.

Second, the district, the Central Arizona Water Conservation District, will assume the responsibility for managing the completion of those few remaining project features which need to be constructed. Utilizing Federal appropriations, which will be subject to repayment. Any cost overruns will be our responsibility, as a local governmental entity.

Third, we have agreed that an additional 240,000 acre feet of water will be reserved for Federal use, bringing the total amount of Federal reserved waters that can be delivered by the Central Arizona Project to 687,000 acre feet annually. This amount of water will enable the United States to resolve long-standing water rights disputes with Native Americans in Arizona.

And fourth, the agreement provides that the Central Arizona Water Conservation District will pay the Federal Government the amount of $45 million, which is intended to be used in combination with that 687,000 feet of water to ensure equity and the ability of those tribal entities to actually take delivery and utilize that water.

There are enormous benefits of this agreement to the Central Arizona Project and to the United States. From the Central Arizona Project's perspective, the agreement provides us with stability in water supply and in cost, brought about as a result of resolution of the various Native American water right disputes.

By the agreement of the United States to pay the operation and maintenance costs on its allocation of CAP water through the year 2020, by recognition of the target pricing policies that the Central Arizona Project adopted to try to keep our agricultural customers able to take some of our water, ultimately by transfer of the CAP headquarters building, transfer of title of that building from the United States to us as a local government entity, and by a host of other concessions and features that are part and parcel of that agreement. We look forward to consummating that agreement with the Department of the Interior in the near future.

We fully support and again thank you for the budget item that is $92.725 million for Central Arizona Project construction in this year. I would be glad to answer any questions you may have and I very much appreciate the opportunity to have been here today.

Mr. STUMP. Mr. Chairman, the last to testify today is the Vice-Mayor of Tucson, here with us today, Roger Sedlmayr.

Mr. SEDLMAYR. Thank you, sir.

Chairman Myers and Members of the subcommittee, I am Roger Sedlmayr. I am the Vice-Mayor of the City of Tucson. I am here today representing George Miller, our mayor, and the people of the City of Tucson. Chairman Myers, I was at a luncheon today that you attended, and I took your remarks to heart, and this will be very short.

So I thank you. I thank you for the——

Mr. MYERS. We always reward those for brevity.

Mr. SEDLMAYR. Thank you very much for this opportunity. The people of Tucson appreciate the funding that your committee has given us over the years for Central Arizona Project water. The Tucson mayor and city council are committed to CAP water, and what we need now is we need terminal storage. And we can then rely on Central Arizona Project long term. The Bureau can acquire a site for terminal storage reservoir.

It has an additional—what it really needs is it needs an additional $3 million, we do, and we need to get that appropriation so we can buy the site for terminal storage. We would appreciate getting this money in fiscal year 1996. The details of all of this are in my statement that has been put in the record.

So we are here, nothing more than asking for your help, the help that you have given us over the years, and we ask for your continued support, and we appreciate everything that you have done for the City of Tucson and the State of Arizona.

Thank you, sir. Thank you all.

[The statement of Mr. Sedlmayr follows:]

ROGER M. SEDLMAYR, VICE-MAYOR
CITY OF TUCSON
STATEMENT
TO THE
HOUSE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
MARCH 29, 1995

THE PEOPLE OF TUCSON GREATLY APPRECIATE THE FUNDING SUPPORT YOUR COMMITTEE HAS GIVEN OVER THE YEARS TO THE CENTRAL ARIZONA PROJECT.

UNTIL THE ARRIVAL OF COLORADO RIVER WATER THROUGH THE CAP AQUEDUCT IN LATE 1992, TUCSON WAS ONE OF THE LARGEST METROPOLITAN AREAS IN THE UNITED STATES WHOLLY DEPENDENT UPON GROUNDWATER. SINCE THE EARLY 1990'S, TUCSON HAS BEEN FORCED TO MINE GROUNDWATER (WITHDRAW MORE GROUND WATER THAN IS NATURALLY REPLENISHED TO THE BASIN) TO PROVIDE WATER TO ITS GROWING POPULATION.

RECOGNIZING THE LIMITED NATURE OF THE GROUNDWATER RESOURCE, TUCSON COMMITTED IN THE 1970'S TO A CONSERVATION ETHIC. OVER THE YEARS, THIS HAS RESULTED IN SIGNIFICANT REDUCTIONS IN PER CAPITA DAILY WATER DEMAND. CURRENT DEMANDS FOR WATER IN THE TUCSON BASIN EXCEED RENEWABLE SUPPLIES BY A RATIO OF NEARLY TWO TO ONE.

SINCE THE 1970'S, TUCSON HAS BEEN A MAJOR SUPPORTER OF THE CENTRAL ARIZONA PROJECT TO IMPORT COLORADO RIVER TO METROPOLITAN AREAS OF THE STATE. TUCSON RECOGNIZES THAT CAP WATER WILL BE THE MOST VIABLE LONG-TERM WATER SOURCE TO SUSTAIN: 1)TUCSON'S ECONOMIC AND POPULATION GROWTH, 2)MEET THE ARIZONA GROUNDWATER CODE REQUIREMENTS, AND 3)CONSERVE AND PRESERVE THE CITY'S GROUNDWATER RESOURCE FOR THE FUTURE.

IN 1989, AFTER A LENGTHY PROCESS OF STUDY AND PUBLIC INPUT, TUCSON ADOPTED A LONG RANGE WATER RESOURCES PLAN. AS PART OF THAT PLAN, TUCSON MADE A POLICY DECISION OF RAPID TRANSITION FROM MINED GROUNDWATER TO SURFACE WATER. THIS POLICY DECISION WAS MADE MUCH EARLIER THAN REQUIRED BY ARIZONA'S GROUNDWATER MANAGEMENT CODE.

FOR THE PAST THIRTEEN YEARS, TUCSON HAS BEEN SHIFTING ITS ECONOMIC RESOURCES FROM DRILLING NEW WELLS AND MAINTAINING THE WELLFIELDS, TO REORIENTING THE WATER DELIVERY SYSTEM. WE CONSTRUCTED A LARGE TREATMENT PLANT CAPABLE OF DELIVERING SUFFICIENT TREATED CAP WATER TO SUBSTITUTE RENEWABLE WATER FOR NEARLY ALL OF THE GROUNDWATER THE CITY WAS DELIVERING. TUCSON INVESTED NEARLY $250 MILLION IN THE FACILITIES REQUIRED FOR RELIANCE ON CAP WATER.

A CRUCIAL ELEMENT OF TUCSON'S PLANNING FOR RELIANCE ON CAP WATER HAS BEEN THE DELIVERY RELIABILITY FOR SOUTHERN ARIZONA THROUGH THE CONSTRUCTION OF A STORAGE RESERVOIR AND RELATED FACILITIES AS PART OF THE PROJECT. WE COMMONLY REFER TO THIS COMPONENT OF THE PROJECT AS TERMINAL STORAGE.

THE PURPOSE OF MY TESTIMONY TODAY IS TO URGE THAT THE BUREAU'S ONGOING DESIGN AND CONSTRUCTION FOR TERMINAL STORAGE BE FUNDED AT THE BUREAU'S FULL WORK CAPABILITY, SO THAT OUR CITY CAN BE ASSURED OF CAP DELIVERY RELIABILITY AS THE CITY SHIFTS ITS WATER SUPPLY FROM GROUNDWATER TO CAP WATER.

GROWTH PROJECTIONS PUT THE TUCSON AREA'S POPULATION AT 1.2 MILLION BY 2025, AND AT 2.5 MILLION 100 YEARS FROM NOW. TUCSON WATER DELIVERED MORE THAN 105,000 ACRE-FEET OF WATER IN 1994. THIS AREA IS PROJECTED TO NEED MORE THAN 200,000 ACRE-FEET IN 2025, AND OVER 400,000 ACRE-FEET IN THE YEAR 2100. TUCSON HAS A POTENTIAL SERVICE AREA WHICH INCLUDES MOST OF EASTERN PIMA COUNTY, NORTH OF THE SAN XAVIER INDIAN RESERVATION. ADDITIONALLY, ALONG WITH ITS OWN RESIDENTS, TUCSON SERVES OTHER MUNICIPAL AND INDUSTRIAL PROVIDERS IN THE AREA.

THE CITY'S CAP WATER ALLOCATION IS 148,420 ACRE-FEET, WITH AN ADDITIONAL 25,000 ACRE-FEET ALLOCATED TO PRIVATE WATER COMPANIES AND STATE LAND IN THE AREA. TUCSON'S LONG RANGE PLAN SHOWS THIS AREA'S CURRENT CAP ALLOCATIONS WILL BE TOTALLY UTILIZED BY THE YEAR 2025. THE PLAN CALLS FOR THE CITY TO ACQUIRE ADDITIONAL CAP WATER.

TUCSON IS, AND MUST BE, COMMITTED TO THE CENTRAL ARIZONA PROJECT TO SUPPORT THE CITY'S FUTURE GROWTH. I ASSURE THIS COMMITTEE THAT TUCSON'S LONG-TERM COMMITMENT TO THE CAP REMAINS INTACT, DESPITE TECHNICAL PROBLEMS EXPERIENCED BY THE CITY DURING THE FIRST FEW MONTHS OF CAP WATER DELIVERY. AFTER DESCRIBING THESE PROBLEMS, I WILL ADDRESS OUR PRIMARY CONCERN REGARDING THE PROPOSED APPROPRIATIONS FOR THE CAP FOR FISCAL YEAR 1996 - FUNDING FOR TERMINAL STORAGE.

TECHNICAL IMPLEMENTATION PROBLEMS IN TUCSON

CONVERSION OF TUCSON WATER'S SERVICE AREA POPULATION OF NEARLY 600,000 PEOPLE FROM GROUNDWATER TO SURFACE WATER HAS BEEN A SIGNIFICANT CHALLENGE FOR THE CITY. IN ORDER TO COMPLY WITH ANTICIPATED NEW STRINGENT EPA REQUIREMENTS, TUCSON CONSTRUCTED A STATE OF THE ART WATER TREATMENT PLANT. WE OPERATED A PILOT PLANT IN PHOENIX TO IDENTIFY AND DEAL WITH THE PROBLEMS THAT COULD BE ENCOUNTERED WHEN CAP WAS INTRODUCED IN TUCSON. A MAJOR PUBLIC RELATIONS CAMPAIGN WAS IMPLEMENTED TO PREPARE OUR CUSTOMERS FOR THE CHANGES THEY MIGHT ENCOUNTER WHEN CAP WATER ARRIVED. WHEN THE FIRST 84,000 CUSTOMERS WERE TRANSFERRED FROM GROUNDWATER TO CAP WATER IN NOVEMBER 1992, CUSTOMERS EXPERIENCED PROBLEMS ON A SCALE THAT HAD NOT BEEN

ANTICIPATED. THE SURFACE WATER CAUSED ENCRUSTED MATERIALS IN OLD GALVANIZED STEEL PIPES TO BREAK LOOSE RESULTING IN THE DELIVERY OF BROWN WATER AND CREATING A VARIETY OF OTHER PROBLEMS, (HOT WATER LEAKS, WATER PIPE LEAKS AND WATER PRESSURE PROBLEMS) TO A LARGE PERCENTAGE OF THOSE HOMES ON CAP. BECAUSE OF THE BROWN WATER PROBLEMS, ABOUT 30,000 HOUSEHOLDS WERE RETURNED TO GROUNDWATER IN 1993 WHILE WATER MAINS WERE REPLACED. THE CITY ESTABLISHED A SPECIAL OFFICE TO DEAL WITH CUSTOMER COMPLAINTS AND EMPLOYED NATIONALLY RECOGNIZED EXPERTS TO HELP SOLVE THE PROBLEM. HOWEVER, A QUICK SOLUTION WAS NOT ACHIEVED.

THE CITY CONTINUED TO DELIVER TREATED CAP WATER TO APPROXIMATELY 50,000 HOUSEHOLDS UNTIL OCTOBER 1994 WHEN THE CAP AQUEDUCT WAS CLOSED DOWN FOR APPROXIMATELY TWO MONTHS FOR SIPHON REPAIR. AT THAT TIME, THE MAYOR AND COUNCIL DECIDED THAT IT WOULD NOT RESUME DELIVERIES OF TREATED CAP WATER TO ANY CUSTOMERS UNTIL THE CITY CAN DELIVER QUALITY WATER TO ALL TUCSON WATER CUSTOMERS. CURRENTLY THE CITY IS DEVELOPING WAYS TO CONTINUE TO PURCHASE CAP WATER AND STORE IT FOR FUTURE USE. AT THE SAME TIME, A NUMBER OF STUDIES ARE BEING CONDUCTED TO ASSIST THE CITY IN DECIDING HOW BEST TO USE CAP WATER IN THE LONG TERM. THE MAYOR AND COUNCIL HAS BEEN CLEAR AND UNITED IN CONTINUING THEIR COMMITMENT TO TAKING SUBSTANTIAL QUANTITIES OF CAP WATER EACH YEAR. HOWEVER, THE CITY MUST DEAL WITH THE QUALITY ISSUES EXPERIENCED BECAUSE OF THE FLOW OF CAP WATER THROUGH THE CITY'S OLDER PIPE SYSTEM. ECONOMIC CONSEQUENCES WILL INCLUDE PIPELINE REPAIR AND ACCELERATED REPLACEMENT, COSTS FOR HOMEOWNER DAMAGES, AND THE POSSIBLE NEED FOR A NEW DEMINERALIZATION PLANT.

WE MUST CONTINUE TO PRESERVE OUR BASIC CONSERVATION ETHIC, AND RECOGNIZE OUR LONG-TERM NEED FOR CAP WATER TO MEET THE NEEDS OF TUCSON'S GROWING POPULATION. TO THIS END, TUCSON HAS COMMISSIONED THE "CAP USE STUDY FOR QUALITY WATER" BY DAMES AND MOORE TO STUDY AND REPORT ON ALTERNATIVES FOR UTILIZATION OF THE CITY'S CAP ALLOCATION. IN ITS FIRST DRAFT REPORT, DAMES AND MOORE NARROWED ITS STUDIES TO FOUR OPTIONS - THREE OF WHICH WOULD REQUIRE DIRECT DELIVERY OF SUBSTANTIAL QUANTITIES OF TREATED CAP WATER. TERMINAL STORAGE IS CRITICAL TO THE OPTIONS REQUIRING DIRECT DELIVERY.

TERMINAL STORAGE

THE PROBLEMS TUCSON HAS EXPERIENCED SWITCHING FROM GROUNDWATER TO CAP WATER HIGHLIGHT THE NEED FOR A TERMINAL STORAGE FACILITY NEAR THE TERMINUS OF THE AQUEDUCT. AS THE FINAL ELEMENT OF THE CENTRAL ARIZONA PROJECT IN SOUTHERN ARIZONA, A RELIABLE SUPPLY OF CAP WATER IS VERY IMPORTANT AND CRITICAL TO TUCSON. IT IS ALSO QUITE IMPORTANT TO THE TOHONO O'ODHAM NATION. THE NATION HAS A CONTRACT FOR 37,800 ACRE-FEET OF CAP WATER. THEY ARE TO RECEIVE AN ADDITIONAL 28,200 ACRE-FEET OF WATER UNDER THE

TERMS OF THE SOUTHERN ARIZONA WATER RIGHTS SETTLEMENT ACT OF 1982. THIS MAY ALSO BE CAP WATER. THE NATION HAS URGED THAT TERMINAL STORAGE BE PROVIDED AS PART OF THE CENTRAL ARIZONA PROJECT SO THAT A RELIABLE SUPPLY OF WATER WILL BE PROVIDED TO THE NATION AND ITS PEOPLE.

THE BUREAU OF RECLAMATION'S APPROPRIATION REQUEST SEEKS ONLY $2.85 MILLION FOR TERMINAL STORAGE WORK IN FISCAL YEAR 1996. WE UNDERSTAND THE BUREAU HAS THE CAPABILITY OF DEPLOYING $5.85 MILLION TO MOVE OUR TERMINAL STORAGE PROJECT ALONG. IF THE ADDITIONAL $3.0 MILLION IS NOT APPROPRIATED, THE INITIATION OF CONSTRUCTION COULD BE DELAYED A YEAR OR MORE.

OUR REQUEST IS THAT $3 MILLION BE ADDED TO THE BUREAU'S APPROPRIATION SO THE BUREAU CAN ACQUIRE THE RESERVOIR SITE AND WORK TO FULL CAPACITY ON THE TERMINAL STORAGE FEATURE. WE ALSO ASK THE BUREAU BE ENCOURAGED TO PROGRAM ITS FUNDING REQUESTS OVER THE NEXT THREE YEARS TO PROVIDE FOR WORK ON TERMINAL STORAGE AT FULL CAPABILITY SO THAT IT CAN BE COMPLETED AS EARLY AS POSSIBLE. SINCE 1978, BOTH THE CITY AND THE BUREAU OF RECLAMATION HAVE PLANNED FOR TERMINAL STORAGE AS AN INTEGRAL PART OF THE CAP SYSTEM.

THE BUREAU IS CURRENTLY DOING DETAILED PLANNING AND CONTINUING THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) PROCESSES ON A TERMINAL STORAGE PROPOSAL APPROVED BY THE CITY OF TUCSON AND THE CENTRAL ARIZONA WATER CONSERVATION BOARD (CAWCD). THE FOUR PRINCIPLE ELEMENTS OF THE PROPOSAL ARE:

1. A 15,000 ACRE-FOOT SURFACE STORAGE RESERVOIR WITH 350 CFS GRAVITY FLOW TO THE TUCSON WATER TREATMENT PLANT.

2. JOINT CAP RECHARGE FACILITIES WITH THE CAWCD.

3. RECOVERY OF RECHARGED WATER FROM:

    a. TWO OF TUCSON WATER'S EXISTING EXTERIOR WELLFIELDS, AVRA VALLEY AND SANTA CRUZ, WITH THE FLEXIBILITY TO INTRODUCE FLOWS EITHER AT THE TREATMENT PLANT OR INTO THE SURFACE RESERVOIR; AND

    b. A NEW CENTRAL AVRA VALLEY WELLFIELD, LOCATED ON CITY-OWNED PROPERTY WITH THE PUMPED SUPPLY INTRODUCED DIRECTLY INTO THE CAP CANAL ON THE DISCHARGE SIDE OF THE BRAWLEY PUMPING PLANT.

4. OPERATION OF THE TUCSON WELLFIELDS TO BE TURNED OVER TO THE CAWCD, UNDER A COOPERATIVE AGREEMENT, DURING ANY CAP OUTAGES.

THE ESTIMATED COST OF THE FEDERAL PORTION OF THIS PROJECT IS $61 MILLION FOR THE STORAGE FACILITY; THE COST OF THE LOCAL PORTION IS $50 MILLION FOR EXISTING AND NEW WELLFIELDS AND PIPELINES. THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR TERMINAL STORAGE IS SCHEDULED TO BE COMPLETED IN APRIL 1995 WITH THE FINAL EIS APPROVED IN NOVEMBER 1995 AND THE RECORD OF DECISION IN DECEMBER 1995.

WE ARE COUNTING ON THE BUREAU TO EXPEDITE ITS WORK ON THIS CRUCIAL PORTION OF THE CENTRAL ARIZONA PROJECT SO THAT TUCSON CAN PLAN FOR RELIANCE ON CAP WATER WHEN IT MAKES CRUCIAL LONG TERM DECISIONS LATER THIS YEAR REGARDING FUTURE CAP WATER USES.

WE RESPECTFULLY URGE THIS COMMITTEE TO ADD $3 MILLION TO THE 1996 FISCAL YEAR APPROPRIATION FOR THE CENTRAL ARIZONA PROJECT SO THAT THE LAND FOR THE RESERVOIR CAN BE ACQUIRED AND WORK ON TERMINAL STORAGE CAN CONTINUE AT THE BUREAU'S FULL WORK CAPABILITY, WE ALSO ENCOURAGE THE BUREAU TO PROGRAM ITS FUNDING FOR FUTURE YEARS SO THAT TERMINAL STORAGE CAN BE COMPLETED AS EARLY AS THE BUREAU'S CAPABILITIES WILL ALLOW.

Mr. STUMP. Mr. Chairman, that completes our formal testimony. We do have two Members that are heavily engaged in the debate on the Floor, two of our new Members, John Shadegg, Matt Salmon. I would ask that their statements be made a part of the record.

[The statement of Mr. Salmon follows:]

MATT SALMON
1st District, Arizona

Congress of the United States
House of Representatives
Washington, DC 20515–0301

STATEMENT BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT OF THE COMMITTEE ON APPROPRIATIONS

MARCH 29, 1995

The Honorable Matt Salmon

Mr. Chairman, thank you for the opportunity to testify before your subcommittee today in support of the Central Arizona Project (CAP) which is vital to the water needs of my state. I appreciate the subcommittee's ongoing support for this project, which has spanned three decades, and ask that you continue funding the project in FY'96.

Both houses of Congress have confirmed their commitment to Central Arizona Project since its inception in 1973. The President's FY'96 budget request of $92,750,000 for the CAP will allow for continued construction on the Roosevelt Dam enlargement, improvements on Waddell Dam, to replace damaged siphons, continued studies of the Tucson aqueduct, design and construction of Indian delivery systems, and continued construction of sulphur dioxide scrubbers for the Navajo generating system. I support this funding request and urge the Subcommittee's favorable consideration.

The CAP supplies water for agricultural, municipal, and industrial uses as well as providing water for Indian reservations throughout the central and southern region--it contributes 1.5 million acre feet of much needed water into central Arizona. The Cap is close to completion, and it is important that the Federal Government abide by its investment thus far in order to insure its absolute success. It is money well-spent for a water project that is essential to the state of Arizona.

Thank you for your consideration.

Mr. MYERS. Each of their statements will be, Bob, and Mr. Schrader's statement also will be placed as part of the proceeding records.

Mr. STUMP. I was about to acknowledge him, if I could, Mr. Chairman, since he has done yeoman's work, Bill Schrader, who is the Chairman or rather President of the Salt River Project. And, Mr. Chairman, that completes our testimony. Since we are within our time limits, we look forward to our reward.

Mr. MYERS. Well, we will try to find one today before the day is over. Tom, Mr. Bevill.

Mr. BEVILL. The Chairman has been kind to you, because he has been pointing out to everybody that I spent all the money and then turned the gavel over to him.

Mr. STUMP. I heard that.

Mr. BEVILL. But you are a great group to work with and we appreciate you. And I have always appreciated the Central Arizona Project because, as I stated out there in Tulsa one night at a banquet, that that was the one project in the United States that costs more than the TENNTOM. I was glad it went along with it.

Mr. MYERS. Eldon, would you like to make any comment here, now that you came back, reincarnated, born again.

Mr. RUDD. Well, I see some changes in the offing, and I know that they will be for the best. But I can't add to anything that these great people have said in support of the Central Arizona Project, which you are very familiar with; Chairman Bevill, at the time, was very familiar with.

And I never fail to remember the fact that he was sitting on a cloud at about 200 feet when Allentown disappeared the day before Christmas, and Tom Bevill never forgot that, with good reason. And that was helpful to us, in the long run. Nice to see you.

Mr. MYERS. Thank you. Jay?

Mr. RHODES. Thank you, Mr. Chairman. And very briefly, it is a great pleasure to be here under different circumstances. But I still think that it behooves the State of Arizona to remember that every year we have come here looking for money, every year somebody from Arizona has said the Tennessee Tom Bigby is a great project. And every year we have gotten all we have asked for. So even with the change in leadership, I think it behooves us, Mr. Chairman, to say, in unison, Tennessee Tom Bigby is a great project.

Mr. BEVILL. Jay, you now have my support.

Mr. MYERS. Well, thank you very much. And for Jay's father, of course who never sat in this chair, but he did sit over there, and when he went off the committee, I went on the subcommittee, and I will never forget besides getting our eyeteeth cut, Mr. Bevill and I got our eyeteeth cut on the Tennessee Bigby, too, but the Central Arizona Project, but I will never forget Jay's dad, John Rhodes, as a freshman. That is back when freshmen weren't supposed to talk. Wasn't a bad idea.

But I can recall and maybe I have told some of you, come so often here, I remember on the House Floor offering an amendment to a project for Indiana. His dad laid into me, what do you mean by offering an amendment to this bill I bring to the Floor? On the

Energy and Water bill, of course it was Public Works back then, but I had the nerve to offer an amendment.

He lit into me, you can't do that, you are just a freshman, you don't offer amendments. Once the committee brings it to the Floor, you can't amend it. I never—we are still good friends. I think he would say that. I don't know. But he did light into me.

Now freshmen are heard all the time. But, boy, back then, you had to be here for a while, had to earn your—what we say at Indianapolis at the track, you had to take your stripes off. The rookies had stripes put on the cars. You are driving up behind a car, you see the three stripes, that is a rookie. Once you have proven yourself, you get the stripes taken off the back of your car. So that is a—but anyway, tell the governor hello for us, and we thank you again for your very fine testimony. You always gave a great presentation, all the statements are going to become part of the record.

Jim, did you have——

Mr. BUNN. No, I am just a freshman.

Mr. MYERS. Don't you forget it. The rules have changed. And all for the better, too. Well, thank you very much for your fine testimony. Thanks to all of you for coming once again.

WEDNESDAY, MARCH 29, 1995.

GARRISON DIVERSION UNIT, NORTH DAKOTA

WITNESSES

HON. EARL POMEROY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH DAKOTA

DAVID SPRYNCZYNATYK , STATE ENGINEER, SECRETARY, NORTH DAKOTA STATE WATER COMMISSION

ROBERT STRAND, PRESIDENT, GARRISON DIVERSION CONSERVANCY BOARD

Mr. MYERS. Earl, are you—if you would hold it down, because we have got other witnesses. The committee will recognize Mr. Pomeroy of North Dakota for 10 minutes for your delegation. Your prepared statements will become part of the record. You may proceed as you like for the next ten minutes. Thank you.

Mr. POMEROY. I will have the whole House delegation from my State present, Mr. Chairman. And no longer a freshman, I will tell you this last election, I did have my stripes removed and removed in a most vigorous way.

I am back to introduce the State engineer from North Dakota who will testify as to ongoing funding of the Garrison Diversion project. Those of you who have served with such length and distinction on this committee will be very familiar with the North Dakota Garrison Diversion project. We accepted a permanent flood at the time a dam was constructed on the Missouri River. It has inured to the very substantial benefit of downstream interests in terms of flood control, even some transportation provided on the river and the stabilization of flows. And in return for that, we were to get the Garrison Diversion project.

The Project was very substantially reformulated in 1986 And continues, particularly with funding directed to the MR&I program which Mr. Sprynczynatyk will talk about further. The thrust of this year's budget would be used for MR&I fish and wildlife activity, continuation of the old test area, irrigation planning, recreation and other similar projects.

This year's funding takes place in the process of a bipartisan collaborative effort, where Governor Ed Schafer is working very closely with the congressional delegation, the Senators and me, to look at the application of this program in order to make its best, most cost-effective way, application to the water needs of North Dakota. We need this ongoing funding.

In my opinion, Mr. Chairman, I would be so bold as to state, we are due this ongoing funding, because the water is still there, and yet the Garrison Diversion project has yet to come fully on line.

With that said, let me just tell you briefly about Dave Sprynczynatyk. He is the State engineer and the Secretary to the State Water Commission. He has worked with this issue for many years, is truly in my opinion one of the outstanding State water officials in the country, and one that both the congressional delegation and the governor rely very heavily on. So he is the perfect one to testify to you.

I will be having to absent myself. I am also supposed to be appearing at the Rules Committee at this moment. Thank you very much.

Mr. MYERS. We understand. Thank you. Thanks, Earl.

[The statement of Mr. Pomeroy follows:]

TESTIMONY OF REPRESENTATIVE EARL POMEROY

ENERGY AND WATER APPROPRIATIONS SUBCOMMITTEE

MARCH 29, 1995

Mr. Chairman, thank you for the opportunity to testify in support of funding for the Garrison Diversion project in North Dakota. The people of my State are still waiting for the benefits promised to them almost 50 years ago when the State of North Dakota agreed to allow almost a half million acres of its land to be flooded, much of it prime river bottom. In the meantime, downstream states reap the benefits. Hundreds of millions of dollars of flood damages have been prevented at the expense of upstream states.

The Garrison Diversion project, as amended by the Reformulation Act of 1986, is an economically and environmentally sound project. However, even a good plan that largely remains on the drawing board does little for the people it is supposed to help. Although many small communities, rural water systems, and North Dakota Indian Reservations are benefitting from the MR&I program, we must get to work on completing the principle supply works, if Fargo and Grand Forks are to get water and if Devils Lake is to be stabilized.

Beyond the principle supply works, the remainder of the 29.7 million requested for FY96 will be used for MR&I projects, fish and wildlife activities, continued operation of the Oakes Test Area, irrigation planning, recreation, and other similar projects.

Mr. Chairman, the Garrison Diversion project could use much more than $29.7 million in FY96. However, we recognize the fiscal constraints you will be under as you write this year's bill. But we do hope that the Subcommittee will continue to honor the Federal commitment to the people of North Dakota and keep the Garrison project moving forward at the level we have requested.

Mr. SPRYNCZYNATYK. Thank you, Mr. Pomeroy, and thank you, Mr. Chairman, members of the committee. For the record, my name is Dave Sprynczynatyk. I am the North Dakota State engineer and also the Secretary for the State Water Commission. And I appear here today on behalf of North Dakota's Governor, Ed Schafer.

With your permission, I would also like to submit for the record of the testimony of Bob Strand, who is the chairman of the Garrison Diversion Conservancy District.

Mr. Chairman, last year's appropriation for the Garrison Diversion Unit was $32 million. The majority of that money was used to help rural communities in North Dakota obtain a reliable, quality, safe water supply. Last year, 15 communities received funding assistance to meet their water supply needs. Seven of those communities were under the U.S. Environmental Protection Agency's orders to comply with primary drinking water standards of the Safe Drinking Water Act.

We are grateful to the Congress for your assistance, and on behalf of those communities, we say thank you.

This year, the President has requested $24.9 million for the Garrison Diversion Unit in order to continue assistance to the rural communities still in dire need of a reliable water supply. The money would also be used to continue a portion of the Bureau of Reclamation's obligation under the 1986 Garrison Reformulation Act.

We understand the desire to reduce spending and ease the pressures of the heavy debt, and also how difficult it is to find places to cut the budget. The 22 percent reduction in the Garrison diversion funding is significant, considering the needs that will go unmet without additional appropriations. In order for the Bureau to carry out its remaining obligation to maintain and complete the research work in the observations area, an additional $800,000 is needed.

Without this critical funding, we fear the investment in research equipment and valuable studies will deteriorate and the results of a multiyear program of study will be negated. It is a small but important amount of funds needed to assure that the facilities and hard work that has gone into the critical area of study will not be lost.

Mr. Chairman, while the Bureau's capability to perform additional work under the 1986 Reformulation Act is much greater, we are only asking that an additional $4 million be appropriated for the authorized assistance to municipal, industrial, and rural water systems in North Dakota. The recipients of this assistance are real people with problems that you and I have largely assumed no longer exist.

The State Water Commission and the Garrison Diversion Conservancy District each are petitioned regularly for additional help to relieve communities from the burden of hauling water for domestic and livestock use. One lady recently testified before us that because of a limited supply of hauled water available in her cistern, she was frequently faced with denying her children a daily bath in order to have enough water to meet the family's cooking needs.

Others tell of limits on the number of livestock that can be kept because of the limited water supply.

Many of us may remember the drudgery of hauling water and the harsh limit it puts on the activities that can be undertaken as a farmer or simply as a resident of such a small community that does not have a safe drinking supply. To many North Dakotans, this is not a distant memory, but a reality that they face every day. The 1986 Reformulation Act left North Dakota with an incomplete project canal system that goes nowhere and other parts of it that have no water supply.

The major needs of the Devil's Lake Basin, the James River Valley and the Red River Valley are unmet. To resolve these issues, we have joined with the tribal leaders and the national conservation groups in a collaborative effort to find acceptable solutions.

Mr. Chairman, these funds will also be used to support the studies needed to find the solutions to our long beleaguered water program. We are hopeful that the solution can be found in time for the 104th Congress to take action.

Mr. Chairman, the total additional appropriation requested today is $4.8 million. This will represent a 7 percent cut in our funding and will be far short of the Bureau's capability in our total need. We sincerely hope that the committee can find the additional funds we are requesting and we thank you in advance for your consideration and also for your support in the past.

Mr. Chairman, members of the committee, I would be glad to answer any questions you might have.

Mr. MYERS. Well, thank you, Mr. Sprynczynatyk, thank you very much for your fine statement. Thank you.

[The statements of Mr. Sprynczynatyk and Mr. Strand follow:]

TESTIMONY OF

DAVID A. SPRYNCZYNATYK

NORTH DAKOTA STATE ENGINEER
AND SECRETARY TO THE
NORTH DAKOTA STATE WATER COMMISSION

BEFORE THE HOUSE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

GARRISON DIVERSION UNIT

MARCH 29, 1995

TESTIMONY OF

DAVID A. SPRYNCZYNATYK

NORTH DAKOTA STATE ENGINEER
AND SECRETARY TO THE
NORTH DAKOTA STATE WATER COMMISSION

BEFORE THE HOUSE SUBCOMMITTEE
ON ENERGY AND WATER DEVELOPMENT
GARRISON DIVERSION UNIT

March 29, 1995

My name is David Sprynczynatyk, State Engineer and Secretary to the North Dakota State Water Commission. I am here today representing North Dakota Governor Schafer. With the Chairman's permission, I would also like to submit, for the record, the prepared testimony of Robert Strand, Chairman of the Garrison Diversion Conservancy District.

Mr. Chairman, last year's appropriation for the Garrison Diversion Unit was $32 million. A majority of that money was used to help rural communities of North Dakota obtain a reliable quality water supply. Last year, 15 communities received funding assistance to meet their water supply needs. Seven of those communities were under the U. S. Environmental Protection Agency's orders to comply with primary standards of the Safe Drinking Water Act. We are grateful to the Congress for the assistance, and on behalf of the 15 communities, we say thank you.

This year the President has requested $24.9 million for the Garrison Diversion Unit in order to continue assistance to the rural communities still in dire need of a reliable water supply. The money would also be used to continue a portion of the Bureau of Reclamation's obligation under the 1986 Garrison Reformulation Act. We understand the desire to reduce spending and ease the pressures of a heavy debt and also how difficult it is to find places to cut the budget. The 22 percent reduction in Garrison Diversion funding is significant, considering the needs that will go unmet without additional appropriations.

In order for the Bureau to carry out its remaining obligation to maintain and complete the research work in the Oakes area, an additional $800,000 is needed. Without this critical funding, we fear the investment in research equipment and valuable studies will deteriorate, and the results of a multi-year program of study will be negated. It is a small, but important, amount of funds needed to assure that the facilities and hard work that has gone into the critical area of study will not be lost.

Mr. Chairman, while the Bureau's capability to perform additional work under the 1986 Reformulation Act is much greater, we are only asking that an additional $4.0 million be appropriated for the authorized assistance to municipal and rural water systems in North Dakota. The recipients of this assistance are real people with problems that you and I have largely assumed no longer exist. The State Water Commission and the Garrison Diversion Conservancy District each are petitioned regularly for additional help to relieve communities from the burden of hauling water for domestic and livestock use.

One lady recently testified before us that because of the limited supply of hauled water available in the cistern, she was frequently faced with denying her children a daily bath in order to have enough water to meet the family's cooking needs. Others tell of limits on the number of livestock that can be kept because of the limited water supply. Many of us may remember the trudgery of hauling water and the harsh limit it puts on the activities that can be undertaken as a farmer or simply as a resident of such a community, but to many of North Dakota's residents, it is not a distant memory, but a reality that they face every day.

The 1986 Reformulation Act left North Dakota with incomplete project canals that go nowhere and others that have no water supply. The major needs of the Devils Lake Basin, James River Valley and Red River Valley are unmet. To resolve these issues, we have joined with the tribal leaders and the national conservation groups in a collaborate effort to find acceptable solutions. Mr. Chairman, these funds will also be used to support the studies needed to find the solutions to our long beleaguered water program. We are hopeful that the solution can be found in time for the 104th Congress to take action.

Mr. Chairman, the total additional appropriation requested is $4.8 million. This will represent a 7.0 percent cut in our funding and will be far short of the Bureau's capability and our total need. We sincerely hope that the committee can find the additional funds we are requesting and wish to thank you in advance for your consideration.

TESTIMONY OF ROBERT STRAND, CHAIRMAN
GARRISON DIVERSION CONSERVANCY DISTRICT

Before the House Appropriations Subcommittee
for Energy and Water
March 29, 1995

My name is Robert Strand, Chairman of the Garrison Diversion Conservancy District Board of Directors. We wish to thank the Chairman and the Committee for their past support. Over the many long years of turmoil on the Garrison Diversion Project, you have continued to provide a level of funding which has allowed us to continue our efforts to work out the problems associated with the project. We are truly grateful for your loyalty and support during these difficult years. They have been difficult years for us. The citizens of North Dakota have increasingly asked, "Will the government ever live up to its promises and provide North Dakota a working water project?"

Past funding has been used to maintain the nearly $400 million of unfinished project facilities that cut across the state's midsection. The 75-mile McClusky Canal runs from Lake Audubon to the site of the planned Lonetree Reservoir where it is dead ended. The New Rockford Canal runs another 44 miles, starting 22 miles to the east of the terminus of the McClusky Canal and runs to its dead end near the town of New Rockford, adjacent to the upper James River channel. The District performs the operation and maintenance functions for these facilities under contract with the Bureau of Reclamation. Prior to District assumption of this role, the facilities were deteriorating rapidly, along with the public's view of the federal government's stewardship.

In addition, the Oakes Test Area, along a lower portion of the James River, is another incomplete facility. This facility was designed to provide research results on a 5,000-acre unit and then be integrated into a 24,000-acre area to be developed under the 1986 Reformulation Act. While research has been conducted in the area, the original purposes of the research have not been met. Attached to my testimony is a comparison of the original research objectives with the actual results to date. The Bureau now wants to discontinue its support for the work and, on the one hand, proposes to wrap up the research work in fiscal year 1996, but has not requested any funding to actually carry out that promise. We are, thus, requesting an additional $800,000 to allow the Bureau to address this need. Mr. Chairman, this modest increase in funding is short of the $1.0 million of additional monies needed to continue the research and fulfill the original promise.

The District understands the Bureau's desire to get out of this traditional business and is willing to work with them to that end. For example, we have proposed a transition period to allow the research work in the Oakes Test Area to be transitioned into a more relevant and useful direction. The new direction would be one that would hopefully attract new investors both public and private.

This proposal would allow the Bureau to reduce their role and funding and, at the same time, preserve and enhance the benefits of the $56 million that they have invested in the test facility. The additional funding in fiscal year 1996 will allow us to pursue this alternate policy. We strongly believe it is a better, more responsible policy road to take.

Past funding has also been used to help meet part of a $200 million MR&I grant program authorized in the 1986 Reformulation Act. To date, nearly $110 millon has been appropriated to help with the most severe of the water supply problems in rural towns and communities. The need is much, much greater, but that was the deal we were given in 1986. One further example is the unmet need for the Native Americans to have a safe, reliable water supply. The communities and rural water system users that are finally receiving reliable quality water are indeed grateful.

The Bureau's request for funds in fiscal year 1986 contains approximately $11 million for the continuation of that program. We have been programming the development of the water systems based on the appropriation of about $15 million annually. Many of the communities have looked ahead and anticipated when, with this level of funding, they might expect the funding needed for them to proceed with the development of their water systems. The reduced funding will add to the hardship they already experience. We are, therefore, asking that an additional $4 million be added to the amount requested. The total MR&I funding would, thus, be $15 million; far short of the $20 million capability.

Mr. Chairman, I would be derelict in my duties if I did not take this opportunity to appraise you of the process we have underway, and we are hopeful that this process will, once and for all, resolve the Garrison Diversion problems and meet the water infrastructure needs of the state. For almost a year and a half, we have been working with the tribal leaders in the state, the Bureau of Reclamation and the national conservation representatives, the Governor and the Congressional Delegation to develop a consensus on the future water needs for the state and the best way to meet those needs. We are hopeful that the process will produce a consensus that can be put into a legislative proposal during the 104th Congress. Mr. Chairman, nothing would please us more than to settle this issue and achieve a semblance of normalcy in the water management programs of the state. We are excited about the prospect of a future in the state that is not limited by the lack of access to North Dakota's rights to the waters of the Missouri River. We will keep you and your committee informed as this process proceeds.

We again would like to thank the Chairman and the Committee for your support and patience with our struggle.

INCOMPLETE AREAS OF STUDY - OAKES TEST AREA

STUDY AREA 1. SURFACE WATER MONITORING.

STUDY OBJECTIVE:

- ✓ **Determine project effects on the quantities and quality of the natural flows in the James River.**

- ✓ **Determine the quantities and quality of the water pumped by the Oakes Pumping Plant for distribution to project lands.**

Research and Objectives:

- ✓ **Collect and Analyze Water Samples from the Surface Sources for Irrigation of the Oakes Test Area.**

  - ✗ Collect samples from the James River at various locations along it's course from Manfred to the North Dakota - South Dakota boarder.

  - ✗ Analyze the water for flow and sediment quantities, common and nutrient parameters, and trace elements.

The USGS collection of stream flow data and samples for detection of changes in quantity and quality is an ongoing activity. Reports and analysis of the data has not been completed. An analysis of the quality and nutrient parameters needs to be completed to evaluate the effects of irrigation of the Oakes Test Area on surface water sources. There has not been sufficient acres irrigated to fully assess the impacts of full irrigation of 5,000 acres.

Without water from the Missouri River being delivered for use in the James River basin, it is impossible to assess the changes in quantity and quality of the river.

- ✓ **Collect Samples from all Water Sources used for Aquifer Recharge and Irrigation in the Oakes Test Area.**

  - ✗ Collect water samples monthly from the open canal water distribution system.

  - ✗ Analyze samples for common nutrient parameters and selected trace elements.

The Bureau of Reclamation sampling of water sources is an ongoing activity. Reports and analysis of the data has not been completed. An analysis of the quality and nutrient parameters needs to be completed on samples collected to date to determine the effects of the OTA on groundwater and return flows. There has not been sufficient acres irrigated to fully assess the impacts of full irrigation of 5,000 acres.

STUDY AREA 2. DRAIN AND GROUND WATER MONITORING.

STUDY OBJECTIVE:

✔ **To determine the effects on groundwater within the 5,000 acre Oakes Test Area as a result of irrigation and drainage development.**

Research and Objectives:

✓ **Measure Changes in Ground Water Levels and Water Quality as a Result of Irrigation and Drainage Development.**

✓ **Measure Water Quantity and Quality in Drain Flows at Selected Locations Along the Drain System.**

✓ **Study Canal Seepage to Determine the Effectiveness of Canal Lining.**

These objectives have not been met, as a complete analysis of the quality and quantity data is needed to determine the effect of irrigation and best management practices on ground water quality. There has not been sufficient acres irrigated for a sufficient period of time to assess the impacts of full irrigation of 5,000 acres.

Without water from the Missouri River being delivered for use in irrigation of the Oakes Test Area, it is impossible to assess the effect this water source will have on the quality and quantity of return flows.

There has not been sufficient time since installation to fully assess the long term deterioration of canal lining materials.

✓ **Feasibility of Artificial Recharge in the Oakes Aquifer.**

✗ To describe composition and geometry of the Oakes Aquifer.

✗ To describe occurance and movement of groundwater in the aquifer.

✗ To describe aquifer water quality.

✗ To describe the effect on water levels in the aquifer of continuously withdrawing water at a rate of 100 cfs for 60 days.

A pilot-scale aquifer recharge project in the Oakes Aquifer needs to be completed and operated to assess the capability of the aquifer serving as a "storage reservoir" to serve as a partial water supply for irrigation.

STUDY AREA 3. IRRIGATION MANAGEMENT PRACTICES.

STUDY OBJECTIVE:

✓ **Develop, implement, and evaluate Best Management Practices (BMP's) for irrigated crop production, BMP's are defined as "the application of water, fertilizers, pesticides, and herbicides in amounts that maximize crop production and economically efficient farming while, at the same time minimizing chemical or other pollution and degradation of ground or surface water supplies in areas irrigated with water from the GDU".**

Research and Objectives:

✓ **Irrigation Advisory Program.**

✗ Provide liaison and cooperation among Water and power, NDSU, GDCD, Consolidated Operating Agencies, and other resource agencies in the preparation and dissemination of educational information relative to irrigated agriculture and assistance with irrigation development.

✗ Develop in the GDCD and Consolidated Operating Agencies the knowledge and skills needed for future successful operation of the unit's water delivery system.

✗ Develop and implement an irrigation water management program for the benefit of irrigation water users.

A DRAFT BMP manual was developed for the Oakes area. The manual is not "user friendly" and is difficult for farm operators to find needed information. The manual needs to be updated with new information and made "user friendly" to assure use by farm operators.

The Advisors have collected an Agricultural Practices Inventory since 1986, compiled the inventory in a data base and prepared annual reports. The data in this inventory is invaluable in the evaluation of research work accomplished, to evaluate the adoption of BMP's in the Oakes Test Area, for the refinement of BMP's in the Oakes area, and to develop BMP's for other irrigated areas. Collection of the inventory needs to be continued to provide valuable agricultural practices data for the area.

✓ **Determine the Fate of Nitrogen in Coarse Textured Soils Within Non-Irrigated, Newly Irrigated, and Established Irrigated Environments.**

✗ Determine the relationship of applied nitrogen fertilizer on: crop response, inorganic nitrogen concentrations and mass emissions in leachate in tile drains, and net yearly changes on inorganic nitrogen within the root zone.

- ✗ Determine the residence time on nitrate-N and bromide within the crop root zone and intermediate vadose zone of soils with distinctly different physical properties.

- ✗ Test efficacy of a crop response to various nitrogen rates. Compare corn response curves to current NDSU soil testing recommendations for possible localized improvements.

The fate of nitrogen study was terminated prior to completion due to the principal researcher leaving NDSU. The fate of nitrogen under dryland, newly irrigated and established irrigated environments is not fully understood. The fate of nitrogen under these conditions needs to be investigated to evaluate nitrate loading to the groundwater and for improving nitrogen fertilizer recommendations under irrigated crop production.

- ✓ **Best Management Practices Field Studies.**

  - ✗ Determine the impacts of BMP's on crop responses and on leachate losses at major points in an irrigated hydrologic system.

  - ✗ Develop data sets to adapt and/or calibrate/validate suitable models for integrated management of irrigation and nitrogen applications.

  - ✗ Develop/evaluate methods for measuring leachate losses from crop root zones.

The initial study was designed to be with corn, with high value and vegetable crops being studied later. Irrigated corn is rapidly becoming a rotational crop to break weed and disease cycles, rather than a primary crop. The study needs to be extended to investigate the economic and environmental effects of spacially-varied management systems and for other crops such as potatoes, onions, carrots, pumpkins, squash and other vegetables.

- ✓ **Irrigation Scheduling Methods Development and Evaluation and Irrigation System Management.**

  - ✗ Develop corn crop curves by nonweighing lysimeter water balance.

  - ✗ To achieve near maximum yield with minimized drainage losses.

  - ✗ Evaluate plant temperature based methods to timing methods based on available water depletion, partial ET replacement, soil matric potential and growth models.

- ✗ Improve irrigation management capability through automation of center pivot irrigation systems for off-site control and improved performance.

There is a continuing need to study irrigation scheduling methods for additional crops and to evaluate new technology. The comparison and analysis of the performance of corn crop curves developed in previous studies to other irrigation scheduling algorithms for independent field data needs to be completed.

Little or no irrigation scheduling information is available for vegetable crops. Crop curves need to be developed and irrigation scheduling methods evaluated for many vegetable crops.

- ✓ **Buried drip irrigation system evaluation for crop production.**
  - ✗ Examine the design, installation, operation, performance, and economics of buried drip irrigation in the northern great plains.

Literature and correspondence with others in the drip irrigation industry indicate that buried drip irrigation systems have been used for as long as 10 years in locations such as Colorado. Extending this study over a longer period of time would provide a better indication of the economic feasibility of buried drip irrigation systems in the northern great plains.

- ✓ **Application of Geographic Information System (GIS) Technology to Water Quality Management and Planning for BMP's in Irrigated Agriculture.**
  - ✗ To develop and integrated system to estimate the impacts of resource management practices on water quality.
  - ✗ To optimize the generation of input parameters and to validate the system.
  - ✗ To develop methodology to use this system to select optimal resource management practices.

Further research is needed to validate GIS with field measurements. There is also a need to optimize BMP's with economic analysis. There is a need to develop methodology to apply the output from system simulations to water management such as water allocation and containment and of return flows for treatment or reuse.

✓ **Automation of a Center Pivot Irrigator for Off-Site Control and Improved Performance.**

- ✗ Improve irrigation management capability.
- ✗ Create a center pivot automation system that will provide management capability and improve monitoring and achieve near real-time response capability to implement irrigation decisions.

Research is needed to determine whether or not center pivot irrigation systems designed to vary water application amounts and rates for relatively small areas or blocks within a field can be monitored and controlled from remote locations.

✓ **Northern Cornbelt Sand Plains Management System Evaluation Area.**

- ✗ Evaluate and monitor the effect of a corn-soybean cropping system, utilizing ridge-till and band applied herbicides, on the transformation and movement of nitrogen, atrazine, alachlor, and metribuzen and the ensuing impact on ground water.
- ✗ Demonstrate irrigation scheduling techniques that minimize deep percolation while preventing yield reducing stress.
- ✗ Evaluate split applications of fertilizer nitrogen synchronized to plant needs through the use of chlorophyll meter.
- ✗ Demonstrate the economic feasibility of cropping systems that reduce the risk of ground water contamination by agrichemicals.

Corn-soybean rotations are probably not sustainable in the northern great plains. Research should look at the impacts a three or four year crop rotation cycle may have on ground water quality. Research should also look at the effect of crop rotations on crop pest (weeds, disease, and insects) management and control.

STUDY AREA 4. SOILS AND LEACHATE MONITORING.

STUDY OBJECTIVES:

✓ **Provide soils and leachate monitoring to evaluate predictions of irrigation return flow quality and quantity.**

- ✔ **Provide information on irrigation management practices to assist in identifying BMP's in irrigated agriculture, including scheduling, fertilizer and pesticide applications, and other cultural practices.**

Research and Objectives:

- ✓ **Lysimeter Study of Irrigation Return Flows.**
  - ✗ Study nitrogen fertilizer and irrigation rates on quality of recharge water and corn yield.
  - ✗ Quantify precisely in a replicated experiment the rate of N loading to groundwater resulting from inputs of N and irrigation water to corn.
  - ✗ Study a four year potato-corn rotation with "clean" and "standard" nitrogen management treatments under irrigation.

Additional ^{15}N work (at least 2 years beyond 30 September 1995) would provide excellent information on long-term evolution of ^{15}N leachate from the lysimeter profile. One year or more of ^{15}N application to corn on lysimeters is needed to characterize uptake by the crop. Work is also needed on methods to develop and employ site-specific N-fertilization and water management schemes to newly irrigated soils and crops.

- ✓ **Pesticide Mobility.**
  - ✗ Determine pesticide mobility in irrigated northern great plains soils.

New materials are continually being developed for the control of weeds, insects and diseases. Most new materials do not have the same characteristics as those they replace. Therefore, there is a continuing need to evaluate the mobility of pesticides for irrigated crop protection to assure they do not leach into the groundwater.

The data obtained from the idealized laboratory conditions could be used for legitimate validation and calibration of computer simulation models designed for pesticide and conservative solute movement through the unsaturated zone.

- ✓ **Stratification of Nitrogen in a Sandplain Ground Water System Under Irrigated Crop Production.**
  - ✗ Determine and monitor stratification of nitrogen in a surficial unconfined aquifer.

- ✗ Assess the temporal and spatial variability with depth in ground water nitrate concentrations as a result of irrigation and subsurface drainage in irrigated fields.
- ✗ Determine the effect of subsurface drainage on the distribution of nitrate in the top four feet of the ground water.
- ✗ Quantify the biological and chemical processes which control nitrate concentrations in the top four feet of the ground water in an irrigated sandplain aquifer.

The effect of nitrate reduction in tile drains by removal of denitrifying bacteria in biofilm concretions on the tile drain need further study to assess the beneficial and deleterious effects of biofilm removal on nitrogen loading to surface water and the efficiency of subsurface drains. The effect of ground water mixing on nitrate stratification due to pumping for irrigation should be studied. Will deep pumping mix nitrates deeper in the aquifer?

STUDY AREA 3. DENITRIFICATION STUDIES.

STUDY OBJECTIVES:

- ✓ **Study changes in composition of return flow water, primarily nitrogen.**
- ✓ **Evaluate the potential of using a marsh system for controlling nitrate (NO_3-) levels in irrigation return flows.**

Research and Objectives:

- ✓ **Determine by Use of ^{15}N Balance Approach the Fate of KNO_3 Added to the Surface of a Cattail Marsh.**
- ✓ **Determine by Use of ^{15}N Balance Approach the Fate of KNO_3 Added to the Surface Water of a Common-Reed Marsh.**

The kinetics of NO_3-N disappearance in a cattail marsh needs to be studied. Also the role of floating plants and decomposing macrophytes on the N cycle in a marsh needs study. The availability of organic matter from dead cattail and common-reed stems as oxidizable C sources for denitrifying organisms need study.

- ✓ **Determine Changes in NO_3-N and Cl. in Drainage Water Passing Through a Marsh.**

The loss of NO_3-N from drainage water during winter, late autumn and early spring needs study. Also the residence time for NO_3-N disappearance from a marsh requires study.

STUDY AREA 6. CLOSED WASTEWAY SYSTEM.

STUDY OBJECTIVES:

✓ **Test the viability and feasibility of a closed concept in association with an irrigation area to keep operational wastes from having direct surface connection with receiving streams.**

Research and Objectives:

✓ **Test the Viability and Feasibility of a Closed System Concept in Association With an Irrigation Area to Keep Operational Waste Water From Having Direct Surface Connection with Receiving Streams.**

The control system and the closed wasteway needs to be tested with full irrigation of the Oakes Test Area over eight to ten years of operation to fully evaluate the "closed wasteway system" concept.

STUDY AREA 7. WILDLIFE STUDIES.

STUDY OBJECTIVES:

✓ **Determine the impacts of irrigation development in the Oakes Test Area on wildlife and wildlife habitat.**

Research and Objectives:

✓ **Determine the Impacts of Irrigation Development in the Oakes Test Area on Wildlife and Wildlife Habitat.**

This information to be used to determine both adverse and beneficial effects of irrigation development on wildlife.

Need to complete the evaluation and prepare reports of the studies undertaken.

Need to conduct surveys and studies over eight to ten years of full operation of the Oakes Test Area in order to fully evaluate the impacts of irrigation development on wildlife and wildlife habitat.

PROPOSED RESEARCH:

Reclamation's major priorities and responsibilities are to ensure that western water resources are used in a responsible and conservative manner. Research should focus on the major areas of: (1) Water reuse and conservation measures, (2) Effect of agricultural practices on the quality of groundwater recharge and irrigation return flows and quality problems resulting from municipal and industrial uses, and (3) Evaluating the impacts of quality and quantity of groundwater and surface water resources on wildlife and naturally occurring ecosystems.

The Oakes Test Area is ideally situated to conduct research and provide data on irrigation system management, irrigated crop management, impacts on wildlife and wildlife habitat, and other information necessary for districts to formulate comprehensive conservation plans.

Some research has been proposed that can be designed to provide data of local, regional and national significance. Some of these proposals are as follows.

✓ **Use of Farming and Ranching Practices to Enhance Wetland Values.**

Research Objectives:

- ✓ Evaluate the use of irrigated agricultural return flows to produce high quality livestock forage.
- ✓ Assessment of water management scenarios to improve groundwater quality and reduce chemical loads (e.g., nitrates) in irrigation return flow water.
- ✓ Design and construction of an artificial marsh to optimize recycling and removal of nutrients and chemicals.

✓ **Effect of Water Quality Improvement and the Impact of Water Depth Management in Wetlands Flooded with Agricultural Return Flow Water on Bird Use of the Wetlands.**

Research Objectives:

- ✓ Assess impacts of agricultural return flow water on habitat selection by wildlife.
- ✓ Assess wildlife uses of wetlands filled with agricultural return flow water.
- ✓ Develop optimal water management plans to enhance bird use and conserve water.

✓ Assess the impact of fluctuating water levels on wildlife.

✓ Determine optimal water depth fluctuations to enhance production of moist soil plants for benefit of wildlife and livestock.

✓ Irrigation and wildlife Compatibility.

Research Objectives:

✓ Determine criteria for design using center pivot corners for wildlife production, feeding sites and travel lanes.

✓ Determine the effect of wildlife depredation and off-setting measures on irrigated crops as well as recreational values.

✓ Evaluation of Hydrologic System of Wetlands.

Research Objectives:

✓ Prepare and evaluate modular hydraulic modeling system for use in hydraulic investigations of wetlands.

✓ Characterize the water balance components of a wetland.

✓ Investigate the interactions of the wetland and hydrologic components.

✓ Technological Development.

Research Objectives:

✓ Design and development of economical center pivots, sensors, and control systems for soil moisture and/or crop water status sensing and feedback into pivot control systems.

✓ Develop algorithms to optimize center pivot movement and application rates for spatially-varied water and nutrient management.

✓ Environmental monitoring to ascertain whether precision spatial and temporal management of water, nutrients, and chemical inputs at a field scale can actually improve water quality below the soil surface.

✓ Field-scale monitoring for coupling geographic information systems (GIS) software with models to answer questions related to accuracy of large-scale water quality modeling.

✔ **Irrigation Scheduling and Management.**

Research Objectives:

✓ Develop and implement simple, accurate and applied irrigation scheduling methods that can be incorporated into computer controlled pivot panels.

✓ Evaluate and refine the concept of spacially precise application of water, plant nutrients and chemicals using geographical information systems (GIS) and global positioning satellites (GPS) with computerized control panels

✔ **Pressurized Water Distribution System.**

Research Objectives:

✓ Utilizing the Oakes Test Area pressurized distribution system, evaluate pressurized water distribution systems for conservation through better control of water distribution and losses, water delivery load demand, pressure fluctuation problems and energy costs and conservation.

✔ **Management of a Closed-Loop Water Delivery System.**

Research Objectives:

✓ Determine economic problems and develop management practices for a closed-loop water delivery system that will eliminate discharge of operational waste water and irrigation return flows to public water bodies without treatment to remove agricultural chemicals that may be present above state mandated levels.

✔ **Effect of Tree-Root Uptake on Ground-Water Nitrate Concentrations Under Irrigated Farming.**

Research Objectives:

✓ Determine the ability of an established grove of fast-growing poplar trees whose roots establish close to or in the groundwater to remove nitrates and other elements from the groundwater.

✓ Compare the results to control measurements taken from similar groundwater flow paths with no established trees.

✔ **Aquifer Contaminant Mixing.**

Research Objectives:

✓ Determine the effect of pumping water from shallow aquifers versus using surface water sources for irrigation on contaminant mixing (primarily N) within the aquifer and allowing drains and biological processes to remove nitrate and other chemicals that may leach into the aquifer.

Pumping from the aquifer could mix near surface waters containing high concentrations of nitrate much deeper in the aquifer than a surface water supply. Equilibria of biological systems could be upset in the aquifer which could prove to be deleterious to benefits derived from the present stratified system. Maintaining a stratified ground water system could prove to be one of the few mechanisms in which cropping systems, especially high input systems like potatoes, could be environmentally sustainable under irrigation.

✔ **Effects of Intermittent Surface Spreading Artificial Recharge on Aquifer Water Chemistry Under Conditions of Conjunctive Use, Recharge, and Agricultural Land Use.**

Research Objectives:

✓ To monitor and determine changes in water chemistry and for the introduction of pesticides and other contaminants.

✓ To evaluate changes in the aquifer and soil properties within the recharge areas and from conjunctive use.

✔ **Proper Sequencing and Rotation of Crops to Protect Groundwater Quality.**

Research Objectives:

✓ Determine the selection and sequencing of irrigated crops to reduce the impacts of farming methods on groundwater quality and yet produce economical returns.

✔ **Biological Denitrification and/or Immobilization in Ground Water.**

Research Objectives:

✓ Seek to understand the mechanism(s) of denitrification and/or immobilization in the system and determine optimal trade-offs between cleaning buried pipe drains for adequate water flow or letting the biological material accumulate for maximum nitrogen removal.

✓ **Efficacy of Biofilms in Tile Drains on Biological Reduction of Nitrogen.**

Research Objectives:

- ✓ Biological removal of nitrogen in subsurface drains appears to be an important mechanism for reducing nitrogen loading to irrigation return flow water. Biofilms (iron bacteria) within the drains are responsible for reducing nitrogen concentrations in ground water by a factor of up to ten once this ground water moves through the tile drain system. Part of the drop in concentration is also due to dilution because of nitrogen stratification which keeps concentrations low deep in the aquifer but still within the influence of the tile drain. Studies are under way to determine how much each of these processes contributes to nitrogen reduction. However, little information exists on the efficacy of the system to remove nitrate if the biofilm is removed due to cleaning. This study would evaluate the optimal trade-off for cleaning for adequate flow and dilution versus accumulation of the biological material for maximum nitrogen removal.

✓ **Crop, Soil and Hydrologic Responses to Irrigated Agriculture.**

Research Objectives:

- ✓ Discover for better understanding physical, chemical and biological processes related to irrigated agriculture for use in information-intensive models, decision support systems, an/or real time management systems.

WEDNESDAY, MARCH 29, 1995.

BOR BUDGET

WITNESSES

PLINY McCOVEY, SR., VICE CHAIRMAN, HOOPA VALLEY BUSINESS COUNCIL

MIKE ORCUTT, DIRECTOR, HOOPA VALLEY FISHERIES PROGRAM

Mr. MYERS. Next, Mr. Pliny McCovey, who is vice chairman of Hoopa Valley Business Council. And your printed statement will be placed in the record. You may proceed in the next five minutes in any way you would like.

Mr. McCOVEY. Thank you, Mr. Chairman, Members of the committee. We thank you for the opportunity to testify here today. As I said, my name is Pliny McCovey. With me is Mr. Mike Orcutt. For the record, he is director of our fisheries program. We are one of the original self-governance tribes that are authorized under Public Law 103–413, that work with Interior agencies that we can compact through our compact agreement.

For 10,000 years, our people have lived along the Trinity River. To maintain our way of life for culturally and historic and economic resources, we have relied on our fisheries resources. We have reserved fishing and water rights on the Trinity River. With the passage of the Hoopa Yurok Settlement Act and the passage of the Central Valley Project Improvement Act, as well as the solicitor's opinion on fishing rights of the Hoopa and Yurok tribes, our rights are cemented in stone.

In 1963, the Bureau of Reclamation had constructed the trinity diversion dam which diverted approximately 80 percent of the water flow down to the Central Valley project. This led to large impacts on the pre-dam populations of salmon, steelhead, and sturgeon populations in the river. In late 1970, ocean and sport trawl and Indian fisheries were severely restricted, which led to the development of the Trinity River Restoration program and the Klamath River Management Group, and the Klamath Fisheries Management Council, which recommends to the Pacific Fisheries Management Council.

Unfortunately, the salmon and steelhead are still declining. For five years in a row, we are—we haven't met the minimum floor escapement levels. Diversion of water, allocation of fish, habitat such as forest practices and land allocation, has been some—and endangered species have been some of the glaring problems that we have been dealing with. Solutions need to be developed for our region to prevent—for benefit of all of our groups that fend on the economics of nonconsumptive uses such as rafting and tourism.

Our relationship with BOR at times have been very contentious, but in recent years, we have developed a cooperative agreement with them. So it is a mutual benefit to both the Bureau of Reclamation, the mid–Pacific region, and the Hoopa Valley tribe. I think there is a lot we need to look at long-term solutions to the problems that are facing us out there in the West with the fishing, as well as the water needs of everybody.

I would like to briefly summarize our budget requests and we would like to maintain our fiscal year 1996 reclamation Trinity operation and maintenance budget at the fiscal year 1995 levels of 5.05 million, and, number two, maintain a construction program budget for the Trinity River Fish and Wildlife Management program at the fiscal year 1996 proposed level of 5.067 and provide interagency cooperative for comprehensive fishery management agreement between the Hoopa Valley tribe and reclamation be funded at 500,000.

Completion of the Trinity River environmental impact statement is essential to long-term restoration of the Trinity River, and the Hoopa Valley tribe adamantly urges Congress to direct appropriate interior agencies, BOR, U.S. Fish and Wildlife, to provide funding and staffing for this completion of this NEPA document.

With that, I would conclude and thank you for allowing us to testify today.

[The statement of Mr. McCovey follows:]

Hoopa Valley Business Council

P.O. Box 1348 ● Hoopa, California 95546 ● (916) 625-4211

Dale Risling
Chairman

HOOPA VALLEY TRIBE
Regular meetings on 1st & 3rd
Thursdays of each Month

TESTIMONY BY PLINY McCOVEY, SR., VICE CHAIRMAN
HOOPA VALLEY TRIBE OF CALIFORNIA
BEFORE THE
HOUSE ENERGY AND WATER DEVELOPMENT APPROPRIATIONS SUBCOMMITTEE ON THE FY 1996 BUREAU OF RECLAMATION BUDGET
MARCH 29, 1995

Good Morning, Mr. Chairman. I am Pliny McCovey, Sr., Vice Chairman of the Hoopa Valley Tribe (HVT) of California. The HVT is self-governing as defined by P.L. 103-413: as such, the HVT is working with Interior Agencies to identify functions suitable for compacting under the Law. First, I want to express my appreciation for being provided the opportunity to present testimony today regarding the budget for the Bureau of Reclamation (Reclamation).

SUMMARY OF BUDGET REQUEST

1. Maintain the FY 1996 Reclamation Trinity Operation and Maintenance (O&M) budget at the FY 1995 level. ($5.054 million)

2. Maintain the Construction Program budget for the Trinity River Fish and Wildlife Management (Program) at the FY 1996 proposed level ($5.067 million) and provide that the interagency Cooperative for Comprehensive Fisheries Management Agreement between the HVT and Reclamation be funded at $500,000.

3. Completion of the Trinity River (Environment Impact Statement) (EIS) is essential to the long-term restoration of the Trinity River. The HVT adamantly urges Congress to direct appropriate Interior Agencies (BOR, USFWS) to provide funding and staffing necessary to complete the NEPA Document.

BACKGROUND OF THE TRINITY/KLAMATH RIVER FISHERIES ISSUES

The Hoopa Valley Tribe is a federally-recognized Indian Tribe occupying the Hoopa Valley Indian Reservation located on the lower Trinity and Klamath Rivers in Northwestern California. Since time immemorial, the fishery resources of the Klamath-Trinity Basin have been integral to the HVT's culture, history, and economy. The HVT owns a reserved right in the fishery which is held in trust by the United States. The legal and trust status of the reserved right is set forth in an opinion of the Solicitor (M-36979, Fishing Rights of the Yurok and Hoopa Valley Tribes, (October 4, 1993)) and cases cited therein, and has been confirmed by Congress in the Hoopa

Yurok Settlement Act (25 U.S.C. 1300i) and the Central Valley Project Improvement Act (P.L. 102-575, 106 Stat. 4600, 4714, S. 3406(b)(23). Indeed the Tribe's dependence on the river and the fishery is as profound and significant today as it has always been.

In 1955, Congress authorized construction of the Trinity River Division of the Central Valley Project. With the Trinity River authorizing legislation, the Federal Government was obligated to maintain fishery populations of the Trinity River. Further, this legislation was consistent with the already established Federal trust obligations on behalf of the HVT's fishery and water resources.

In 1963, the Reclamation completed construction of the Trinity Division and began diverting about 90 per cent of the River's downstream flows to the Central Valley Project. Immediately after the water diversions began, the fishery populations in the Klamath and Trinity Rivers began to decline. Over the next decade, fisheries experts estimated that the fishery populations experienced a reduction of nearly 90 per cent of the pre-dam populations levels. In response to the dramatic declines in anadromous fish populations, Congress enacted the Trinity River Fish and Wildlife Restoration Program (P.L. 98-541), in 1984. This law was intended to restore fisheries to pre-project levels of abundance. Leading up to this Congressional action, the Secretary of the Interior issued a Secretarial Issue Document (SID), 1981, which increased stream flows from 120,000 acre feet (af) to 340,000 af, and further directed the development of a twelve-year flow evaluation study to identify flows for complete restoration of the fishery.

The scope of the Trinity River Restoration Act was limited to within the Trinity River Basin only. Accordingly, the Act did not include a method for controlling harvest, which impacted the spawning escapement of Klamath and Trinity Salmon stocks. By the early 1980's, the decades of water diversion and corresponding reductions in habitat, coupled with harvest impacts, took a tremendous toll on the fishery resource. Whereas the Trinity Restoration Program had no authority to affect harvest management, coordinated efforts by Tribal, Federal, and State Governments led to the formation of the Klamath River Salmon Management Group. This group, later to become the Klamath Fishery Management Council, (as provided under Klamath River Restoration Act, P.L. 99-552) provided harvest recommendations to the Pacific Fishery Management (PFMC) which were comprehensive with respect to adjusting harvest impacts on Klamath-Trinity Salmon to allow minimum spawner escapement levels necessary to sustain the fish population.

Unfortunately, salmon and steelhead runs in the Klamath currently remain at all-time lows. The fisheries supported by these runs are of vast significance to the regional economies of Northern California and Southern Oregon, which are struggling to recover from impacts of declining timber harvest. Klamath fish populations are impacted by an array of Federal and State projects and processes including: diversions from the Trinity River by the Central Valley Project; diversions from the Klamath River by the Klamath Project; ocean salmon harvest allocations by the Commerce Department's PFMC; and land management by Federal and State agencies.

The HVT remains optimistic at the prospect of fishery restoration envisioned in the Program legislation. However, complete restoration of the Trinity Fishery will depend largely upon the stream flows allocated to the Trinity River. The Secretary of the Interior is required to render a flow decision in 1996. The results of the twelve-year flow evaluation, initiated by the 1981 SID, coupled with the Trinity River EIS should provide the background necessary for the Secretary's Record of Decision.

SUMMARY OF BUDGET REQUESTS

1. **Maintain the FY 1996 Reclamation Trinity Operation and Maintenance (O&M) budget at the FY 1995 level.**

   The FY 1996 President's budget provides for a reduction in the Operation and Maintenance for the Trinity River Division of over $900,000. This budget reduction is based on the Administration's opinion that there will be a decrease in routine operation and maintenance of the Trinity River Hatchery. However, this budget reduction does not take into consideration any increases in other components of the operations and maintenance requirements due to damage resulting from this past winter. Additionally, funds should be made available to complete the EIS to support the instream flow decision in 1996. Therefore, the HVT recommends that the operations and maintenance budget be kept at the FY 1995 level of $5,454,000.

2. **Maintain the Construction Program budget for the Trinity River Fish and Wildlife Management program at the FY 1996 proposed level ($5.067 million) and provide that the interagency Cooperative for Comprehensive Fisheries Management Agreement between the Hoopa Valley Tribe and Reclamation be funded at $500,000.**

   The Program is intended to restore the Trinity River system to pre-dam levels. In response to drastic declines in Klamath Basin fish populations, the HVT has developed its own fishery and water management capabilities to a very sophisticated level, and in the last five years has emerged as a leader in comprehensive basin-wide management of these important resources. In 1992, the HVT and Reclamation initiated a comprehensive Fisheries Co-Management Project (Project) to promote the systemic management of Klamath Basin fisheries and water resources. An interdisciplinary cooperative of technical staff from the Tribal Fisheries Department and Reclamation's Mid-Pacific Region has addressed management of tribal trust fishery and water resources. Decision-making in this collegial forum has already produced significant benefits: dramatically improved relations between the HVT Tribe and Reclamation; and, coordination of operations at the Klamath and Central Valley projects.

   Team members have been able to integrate the methodologies, data, analyses and results of decisions taking place outside the federal water management arena, (e.g., PFMC and Klamath River Basin Task Force's technical work group. Moreover, water management activities at Reclamation's Klamath and Central Valley projects have become coordinated with Tribal, State and Federal fishery restoration efforts.

In the future, the Project is expected to aid in the recovery of salmon runs in the Klamath and Trinity rivers, while promoting timely and effective solutions to federal water management decisions. Integrated federal-tribal management such as afforded through this Project will be critical to avoiding costly roadblocks to federal resource management decisions, such as the Interior Secretary's upcoming decision on Trinity River streamflows.

The Project has thus far gained the support of the Reclamation and has been included in their FY 1996 budget. The project is complemented with an annual trust evaluation aimed at continual refinement of the working relationship between the HVT and Reclamation. The funding requested, provides resources necessary for the HVT to pursue its involvement in operations planning, environmental impacts analysis, hatchery investigations, and fisheries management. Although the HVT's relationship with Reclamation has improved significantly in recent years, it is clear that the fishery management problems associated with the CVP and Klamath Project operations are continuing, and can only be successfully resolved if the HVT and Reclamation are committed to ongoing co-management of these important resources.

CONCLUSION

I am requesting that the budget contained in the proposed FY1996 Bureau of Reclamation budget for the Program be maintained at $5.067 million as proposed. Further, I am requesting that you specify a $500,000 line item for the Hoopa Valley Tribe to preserve the mutually beneficial Comprehensive Fisheries Co-Management Project.

Again, I appreciate the opportunity to present our views on the FY 1996 proposed budget for the Bureau of Reclamation, I would be happy to answer any questions or provide any additional information regarding our budget requests. Thank You.

THSE&W96.640

Mr. MYERS. Thank you for your testimony. Thank you.

Mr. RIGGS. Mr. Chairman.

Mr. MYERS. Yes, Mr. Riggs.

Mr. RIGGS. I may just point out very quickly, for you and our very distinguished Ranking Member, that the Indian—Hoopa Valley Indian reservation is located in my congressional district. And Mr. McCovey is a good friend, as is Mike.

I have had an opportunity to actually visit with the tribal council late last year, I believe. It was during the transition period before I took office and we discussed some of the concerns. And I would like to point out that the Trinity Klamath River system, which runs right through the heart of the Hoopa Square, is vitally important to the economy of the region, but specifically the economic welfare of the tribe.

And it is good to see you here today. It is good to be able to review your budget request, and I look forward to working with you to protect your interest in the fiscal year 1996 appropriations bill.

Mr. MCCOVEY. Thank you very much. Thank you for your kind words.

Mr. MYERS. I am sure we are going to hear about it again, if you have got a member of the subcommittee. I didn't realize, sorry, Frank. Kept looking at that green thing you got on you there. I didn't pay much attention after that. Well, thank you very much for your testimony.

WEDNESDAY, MARCH 29, 1995.

ANIMAS-LA PLATA PROJECT

WITNESS

MICHAEL BLACK, TAXPAYERS FOR THE ANIMAS RIVER

Mr. MYERS. The Committee now will hear Mr. Michael Black, Taxpayers for the Animas River. Mr. Black, your prepared statement will be placed in the record, you may proceed for the next five minutes as you like.

Mr. BLACK. All right, thank you.

Congressman Myers and Congressman Bevill, we met years ago in Durango. I don't suppose you remember. Something about a bumper sticker on the back of your car you might recall.

I am here helping Taxpayers of the Animas River. We are a group organized in 1979 in Durango, Colorado. I am asking that the Animas-La Plata project receive no appropriations for the next fiscal year. If appropriations are granted, I respectfully request that the committee instruct the Bureau of Reclamation to use the monies to examine alternatives to the present tine of the Animas-La Plata project.

Congress is faced with many choices in the upcoming months. In order to balance the Federal budget and get the multitrillion dollar deficit reduced, we understand that every project and every program is on the table. While many of the cuts will be difficult, we are not sure that the Animas-La Plata project is a difficult cut to make.

According to Senator—or then Congressman Campbell, the Animas-La Plata project is going to cost over a billion dollars. I have a little story. Back in 1987, I was here in Washington, I was—we were going around with Jean McCulloch, who has since passed on. We had a meeting with a Senate staff person, I believe it was Senate Indian Affairs Committee.

We were talking, telling him about the numerous fiscal problems that the Animas-La Plata project has. We were going through our discussion, we got about halfway through, and the staff person said, stop. I don't care about money. Money isn't important. Everything costs money. What are the environmental problems with the ALP?

Well, hopefully the attitude in Washington has changed since then. We believe money is important. Jean McCulloch looked at me, and I looked at her. We were flabbergasted. Here was somebody in Washington telling us that a billion dollars wasn't important. That is kind of hard for us as taxpayers to understand.

Mr. MYERS. Those days are gone.

Mr. BLACK. Well, we hope so. Like I said, the environmental problems are severe. It has always been our position that the economics of the Animas-La Plata are what should be the deciding factor in building it or not building it.

As it is presently designed, the project is going to pump a quarter to a third of the volume of the Animas River over 900 vertical feet, and a distance of many miles, to La Plata River Basin, in order to irrigate low value crops, primarily alfalfa, on primarily non-Indian lands. The project requires massive Federal, State, and local subsidies to accomplish this goal. Each acre of irrigated land will cost at least $7,600 an acre of investment. I understand that went up in the last month or so. That was a 1994 estimate.

For a 900-acre farm, which is well within the acreage limitations of the project, the subsidy would amount to over $6.8 million for a farm. This is a gift from the taxpayer to the irrigator. Of that $6.8 million—well, excuse me. It is $7,600 an acre. Out of that amount, the beneficiary will payback $303. And I made a mistake in my written testimony, when I wrote it up I didn't believe what my calculator told me. The $303 is less—I put 3 percent of the cost. It is actually .039 percent of the cost will be repaid by the beneficiaries.

You know, we are hearing about welfare mothers. There is no welfare mother in America that gets that kind of benefits. And the capital costs are not the ends of the subsidies. Because you are pumping water 900 vertical feet, the ALP will require continuous subsidized power for the life of the project.

The ALP is going to reach deep into the taxpayers' pockets for years to come. I am not sure how many of you have been to Colorado. I know you—well, I know both of you have been there. You will notice that it is some of the most rugged territory in the United States. Some of the original settlers were so impressed by the San Juan Mountains that they called it the country that stands on end.

This is the one area in the Nation we should not be pumping water. We have more gravity than anywhere else. It should be allowed to flow downstream, and if you use it, you should use it as gravity flow.

The project is only going to return 60 cents for each Federal dollar invested. This is the conclusion of two independent economists who have looked at the project, Dr. Dale Lehman of Fort Lewis College, Dr. Charles Howe of the University of Colorado in Boulder. It is also the conclusion of the Inspector General of the Department of Interior, as well as Commissioner of Reclamation, Dennis Underwood, who I believe came to that same benefit-cost ratio in testimony in this committee in 1992.

We suspect today you are going to hear the glowing economic report on the project from a cost-benefit analysis done by the firm Bookman-Edmonston. I would like to point out to the committee, and this is in my written testimony, in 1990, Bookman-Edmonston came to the local irrigation district with a proposal to take over construction management, to design irrigation laterals and turnouts, to inspect construction and supervise contract oversight. These are hardly a disinterested party to the ALP.

I brought testimony from Dr. Dale Lehman, who concludes that the Bookman-Edmonston study is seriously flawed for different reasons, and should be redone at no expense to the contractors.

In conclusion, Taxpayers for the Animas River has always been pleased that the Animas-La Plata project makes no economic sense in this age of trillion-dollar deficits and unbalanced budgets. We are concerned about the burden the ALP is going to put on our future and our children's future, that is local, State and Federal taxpayers. In other words, to get our fiscal house in order and balance the budget, many good programs are going to have to be cut. We realize this. Please see this bad program is one of them.

Thank you.

[The statement of Mr. Black follows:]

Statement of Michael Black
Before the Energy and Water Development
Subcommittee On Appropriations
United States House of Representatives
Washington D. C.
March 29 1995

I am Michel Black, representing Taxpayers for the Animas River, an organization from Durango Colorado.

I am asking that the Animas La Plata Project receive no appropriations for the next fiscal year. If appropriations are granted I respectfully request that the Committee instruct the Bureau of Reclamation use the monies to examine alternatives to the present design of the Animas La Plata Project.

This Congress is faced with many tough choices in the upcoming months. In order to balance the Federal budget and get the multi-trillion dollar deficit reduced we understand that nearly every project and every program is on the table. While many of the cuts will be difficult, we believe that the decision on the Animas La Plata Project should be simple.

The Animas La Plata Project is a bloated 1968 Great Society Program that has out lived its usefulness. According to Senator Cambell, the ALP will end up costing the taxpayers over one billion dollars.

As presently designed, the ALP will pump 1/2 to 1/3 of the volume of the Animas River over 900 vertical feet and over a distance of many miles to the La Plata Basin in order to irrigate low value crops on primarily non -Indian lands.

The Project will require massive Federal, State and local subsidies to accomplish this goal. Each acre of irrigated land will cost at least $7,600/acre to irrigate. For a 900 acre farm, well within the acreage limitations of the Project, the government subsidy for capital costs will amount to more than $6,800,000. This is a gift from the taxpayer to the irrigator. Of the $7,600/acre only 3% or $303/acre will be repaid by the beneficiary. This is far more of a subsidy than any welfare mother will ever receive.

The capital construction costs are not the end to the taxpayers subsidy. Because of the enormous electrical power requirements of the Project, the ALP will require continuous subsidized power for the life of the project. The ALP will reach deep into the pockets of the taxpayer for many years to come.

I am not sure how many of you have had the pleasure of visiting Southwest Colorado. If you have, you were sure to notice that the region is one of the most rugged in the nation. The San Juan Mountains so impressed early settlers that they called it "The country that stands on end". This is one area of the nation where we should take advantage of gravity and use it to deliver water. It is literally the last place on earth where we should even consider the pumping of vast quantities of water.

It will be claimed that most of the subsidy will come from Colorado River Storage Project funds. This is simply taking the money from a different pocket of the taxpayer.

The ALP will only return 60 cents for each Federal dollar invested in it. This is the conclusion of two independent economists who have looked at the Project, Dr. Dale Lehman of Fort Lewis College and Dr. Charles Howe of the University of Colorado, as well as the Inspector General of the Department of Interior. In addition, then Commissioner of Reclamation, Dennis Underwood, came to the same benefit/cost ratio in testimony to this committee in 1992.

You will no doubt hear about an economic report from the engineering firm of Bookman-Edmonston that describes the economic benefits of the ALP. I would like to point out to the committee that this same firm came to the local water district in 1990 with a proposal to take over construction management, to design irrigation laterals and turnouts, to inspect construction and to supervise contract oversight. They are hardly a disinterested party to the ALP. According to the testimony of Dr. Dale Lehman, an economist from Durango, the Bookman-Edmonston study is seriously flawed and should be redone at no expense to the contractors.

It is claimed that the ALP will solve the water problems of the Ute Tribes in Colorado. This claim is viewed with increasing skepticism by those who have closely examined the Animas La Plata Project.

Why are almost all of the delivery facilities for tribal water relegated to Phase II of the Project, which will be built by undisclosed "Non Federal" monies ? If the ALP is an Indian water project shouldn't the federal dollars be directed towards the delivery of water to the tribes? Instead the Federal Government will invest over $424 million to deliver water to non-Indian farmers and cities in Colorado and New Mexico, leaving the tribes to raise over $225 million to get the water to a point at which it can be used. We recognize the need to satisfy all equitable water claims of the Ute Tribes but we question the ability of the Animas La Plata Project to do so.

If Federal money is spent, let it be spent on an alternative which will deliver "wet water" to the tribes first, not last.

I will leave the discussion of the environmental problems to others, but will simply mention the hazards to endangered species, water quality in Colorado and New Mexico, the harm the project will do to the growing and unsubsidized river running businesses in Colorado and Utah, as well as the destruction of a quality trout fishery in the Animas river. In addition the ALP threatens farmers and irrigators in New Mexico who have depended on the Animas River for their livelihood for well over a century.

TAR has always believed that the Animas La Plata Project makes no economic sense in this age of trillion dollar deficits and unbalanced budgets. We are concerned about the burden that the ALP will put on our future and our children's future. In order to get our fiscal house in order and balance the budget, many good programs will need to be cut. Please see that this bad program goes first.

Firm proposes cheaper, faster plan for A-LP

Jan 23 90

Durango Herald

Jan 23 1990

By Barry Smith
Herald City Editor

With groundbreaking for the Animas-La Plata Project only months away, directors are considering a proposal that could cut costs and move forward the delivery of irrigation water.

Representatives of Beckman-Edmonston Engineering Inc., a California-based firm, made a brief pitch Monday to the board to design and manage some phases of construction of the $380 million project.

Mike Clinton, who works for the engineering company, said he sees the potential to cut 20 percent from non-contract costs and to deliver some irrigation water ahead of schedule.

"There are opportunities to reorient the construction schedule to push water over to the Dryside maybe three to five years earlier," Clinton said.

Animas-La Plata Water Conservancy District board members said they were interested in the ideas presented by Clinton and Luther Hintz, another Beckman-Edmonston engineer. They asked for a sample contract to review.

"The sooner we can get water over there, the better," said board member Bob Taylor.

One idea mentioned by Clinton was to start construction early on irrigation laterals and add a diversion dam on the La Plata River to make better use of water already flowing on the county's west side.

A second idea would be to link a pumping plant on the Animas River with the Long Hollow Tunnel via a temporary three-mile canal across Ridges Basin. That would mean Animas water could be transferred to the Dryside years before a dam is built and Ridges Basin Reservoir is filled.

An opponent of the Animas-La Plata Project said later that such suggestions call into the question the need for Ridges Basin Reservoir and the design of the project in general.

In either instance, changes in the design of the project should require a new assessment of the project's impact on the environment, said Michael Black, a member of Taxpayers for the Animas River.

The federal environmental impact statement on the project was released in July 1980, before the project was split into two phases.

Clinton, a former employee of the U.S. Bureau of Reclamation who was a lead negotiator in Animas-La Plata cost-sharing talks, outlined how the private engineering company believed it could do some work better and cheaper.

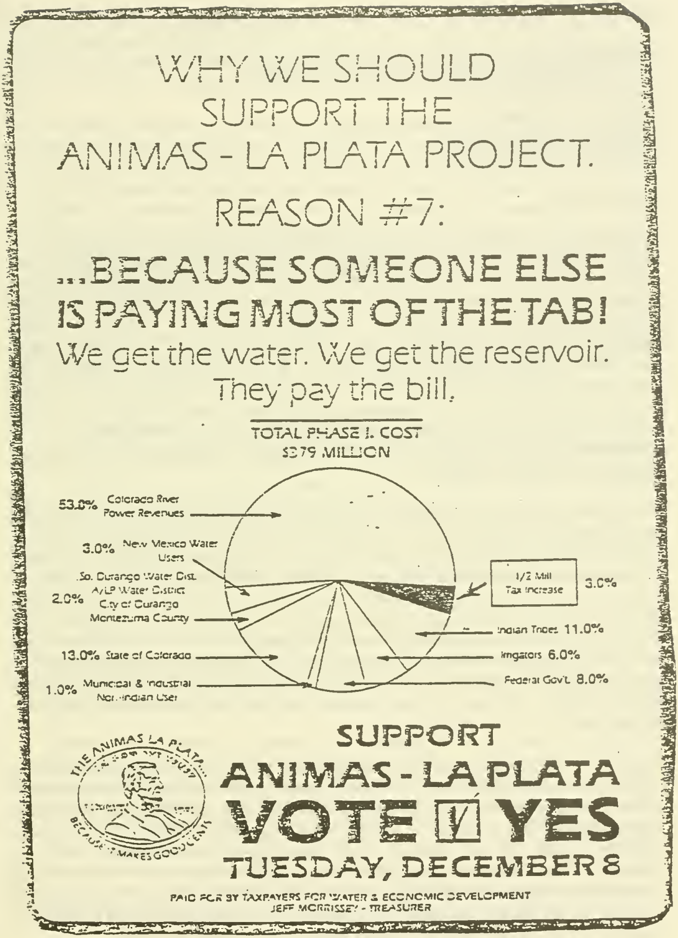
He said the firm, which is now involved in a $200 million contract as part of the Central Arizona Project, can contract through the Drainage and Minor Construction Act for some work that ordinarily would be done by the Bureau of Reclamation.

That would include construction management, designing irrigation laterals and turnouts, inspection of construction and contract oversight.

The company's track record shows that it adds about 20 percent in non-contract costs to a project, while the Bureau of Reclamation typically adds about 40 percent, according to Clinton.

"We think that ... may be a tremendous opportunity for you to cut out some of the costs you have responsibility for," said Clinton.

Max Stodolski, manager of the bureau's Durango office, said he was willing to investigate the proposal but reminded board members that it would cost money to determine the feasibility of using a private firm.



WHY WE SHOULD
SUPPORT THE
ANIMAS - LA PLATA PROJECT.

REASON #7:

...BECAUSE SOMEONE ELSE IS PAYING MOST OF THE TAB!

We get the water. We get the reservoir.
They pay the bill.

TOTAL PHASE I. COST
$379 MILLION

53.0% Colorado River Power Revenues
3.0% New Mexico Water Users
So. Durango Water Dist.
A/LP Water District
2.0%
City of Durango
Montezuma County
13.0% State of Colorado
1.0% Municipal & Industrial Non-Indian User
1/2 Mill Tax Increase 3.0%
Indian Tribes 11.0%
Irrigators 6.0%
Federal Gov't. 8.0%
THE ANIMAS LA PLATA...
BECAUSE IT MAKES GOOD CENTS

SUPPORT
ANIMAS - LA PLATA
VOTE ☑ YES
TUESDAY, DECEMBER 8

PAID FOR BY TAXPAYERS FOR WATER & ECONOMIC DEVELOPMENT
JEFF MORRISSEY - TREASURER

Appendix I Durango Herald
Nov 29 1987

March 17, 1995

Representative John T. Myers
Chair, Subcommittee on Energy and Water Development
Committee on Appropriations
House of Representatives
Congress of the United States
Washington, DC 20515-6015

Dear Mr. Myers,

I am writing with reference to the Animas LaPlata project which you are considering. I am an economist with extensive publications and consulting experience, particularly in the area of project appraisal. The subject of this testimony is the recently prepared "Animas-La Plata and Colorado Ute Water Rights Settlement Act: Economic Impact Study," by Bookman-Edmonston Engineering, Inc. (hereafter called BE). I have previously submitted testimony (dated November 29, 1992) to the Bureau of Reclamation on their cost benefit analysis (hereafter called BR). In that testimony, I explained the methodological errors in the BR analysis. The Bureau is currently updating their cost benefit analysis and I do not know whether they will correct these deficiencies. My own analysis revealed a benefit cost ratio on the order of **0.61**, or a net present value of **-$232million**. The true benefit cost ratio is lower, since I only accounted for some of the major errors in the Bureau study.

It is important for the Subcommittee to realize that the BE study has absolutely nothing to say that changes the BR analysis, nor my corrections to the latter. BR focuses on national economic development (NED) while BE focuses on regional economic effects. The two foci can and should be different. It is entirely possible for the national benefit/cost ratio to be less than one while the regional benefit/cost ratio is greater than one. One only has to think of any project which is paid for largely at federal expense for mostly local gain. The BE study confuses the fact that the purposes of the analyses differs, with statements such as "The total benefit-cost ratio of ALP has been understated by Reclamation in prior analyses" (page 1-1 of BE). There is no reason why the two analyses should correspond whatsoever, given that the costs and benefits to the region are quite different than those for the nation.

Further, it is the national view which should be the primary focus for Federal agencies such as the Bureau of Reclamation. BE does explain the rationale behind the restrictions on the Bureau (page 2-10), primarily on the restriction that the Bureau can not include indirect benefits as a NED benefit. Since money spent on ALP is money not spent elsewhere in the national economy (either through other federal projects, or more plausibly, through a reduced federal budget deficit which means lower interest rates which means more private sector spending), the indirect benefits may be real to the regional economy but are certainly not real at the national level. Nothing in BE alters the fact that the federal government should give primary importance to the national view.

Congress certainly can consider regional impacts as well as national economic effects. It is in this light that I will address BE, since it purports to present the regional analysis of ALP. Unfortunately, it is fundamentally flawed and can not be used to indicate even the approximate regional economic impact. Among the most serious errors in methodology:

- The interest rate used is 3.25%, the rate originally authorized in 1968 for the project. The use of this interest rate is questionable (at best) at the Federal level, but undoubtedly inappropriate at the regional level. The only appropriate discount rates to use at the regional level are either the relevant borrowing or lending rates for regional entities. I would propose a real interest rate of 5% as a more reasonable figure. The 3.25% is entirely moot for a regional analysis. It is a legal issue as to whether or not the Bureau can or should continue to "grandfather" this rate in present analyses - there is no such legal issue for an analysis intended to portray the actual regional economic impacts of the project.

- BE uses the entire project costs rather than the regional component due to cost sharing. This serves to obsfucate the analysis and undermines the integrity of the analysis. Only those costs borne regionally should be included. Period.

- BE has double counted the project benefits! They estimate the benefits due to the water provided by the project for agricultural use and for M&I use. They then claim that without ALP the tribes will litigate their water rights thereby displacing existing users, and that "maintenance of this level of irrigation is a project benefit derived from a comparison of the with-ALP condition and the without-ALP condition" (4-8). This is counting the same water twice: first, when it is supplied by ALP, and again when it permits existing uses to continue. The value of the water should be counted only once, either through permitting existing uses to continue or through allowing new uses.

- In fact, the actual error committed by BE is not as serious as it might have been, since they only count the difference between the value of the water through ALP and the value of current water use that would be displaced by Indian water rights (4-24). They clearly did not understand their own statements on 4-8 and 4-13. However, their analysis on 4-24 is interesting in its own right. The fact is that ALP will yield irrigation water which is less valuable than the existing uses which failure to build ALP would jeopardize! In other words, ALP has the nation committing $600 million of resources in order to permit water use which is less valuable than failure to construct ALP would jeopardize. This leads me to believe that if ALP is not constructed, that existing users should be able to purchase the rights for their current water use from the Tribes. It is simply more valuable to them than to the Tribes. Of course, this would be a matter for negotiation and the financial impacts of any settlement would be costly to current users, but this does not alter the fact that BE demonstrate that existing users place higher values on the water than do the new uses permitted by ALP.

- The preceding issue is mostly an indication of the inherent confusion in BE. They have committed a major conceptual error mitigated only by their own failure to correctly implement their methodology. The bottom line is that they have overestimated the benefits by $1.41 million/year.

- BE's inclusion of indirect benefits is appropriate for a regional analysis. However, the estimated indirect benefits have been overstated due to methodological error. Proper estimation of indirect regional benefits should be attributed to the *net* difference between the with and without project conditions. BE have attached indirect benefits to the *gross* ALP benefits. Since the project is subject to regional cost-sharing, only the parts of the project actually financed from outside the region dollars should yield indirect benefits.

  The multipliers used by BE are derived from assuming that the increased economic activity due to ALP is not offset by any reductions in existing regional activity. Cost sharing is one reason why this assumption is not valid. Another relates to local employment conditions. If the region were fully employed, then there would be no indirect benefits, even if all of the ALP financing came from outside the region. Given that the region is somewhat below full employment, some indirect benefits are attributable to ALP, but estimation of these requires some consideration of estimated local employment conditions over the lifetime of the project. BE have failed to address these issues. Instead, they attach full multiplier effects to the project benefits - a failure to consider only the net contribution of ALP to regional economic activity. As a cost-benefit analysis text states on this point, "prodevelopment and antidevelopment economic arguments are generally not serious analyses, but rather sales pitches."[1]

  This point is subtle and there is no way to completely avoid complexity, so an illustrative example may be useful. If the federal government were to issue a $100 million gift to the region, this would surely be a regional net gain (but not a federal benefit). The issue of indirect benefits is more complicated, since the secondary benefits only accrue to existing regional residents to the extent that there is excess capacity in the regional economy. If, instead of a gift, the federal government were to pay the region $100 million to build pyramids, even the "gift" is more complicated. Since building the pyramids would divert economic resources from some existing activities, only the net increase in economic activity would be a regional gain, and only this net difference would be subject to a multiplier effect (again dependent on excess capacity in the region).

  If the region could choose which resources to employ on the pyramid project (presumably currently un- and under- employed resources), then the indirect benefits will be larger. If markets determine which resources are employed on the pyramids (presumably currently productive resources), then the indirect benefits will be somewhat smaller. In fact, the region can even suffer a net loss if the most productive resources are diverted from existing uses to a less productive pyramid project. Note that this may be true, even if the project is completely financed by outside the region money.

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[1] See Parable Beach, by J.W. Devanney III, G. Ashe, and B. Parkhurst, MIT Press, 1976, pages 18-26.

It is clear that proper accounting for indirect benefits requires a subtle analysis. It is also clear that BE have not provided this. This is what BE should have conducted for the $40,000 they received for this study.

- Further confusion results when BE include foregone property taxes that would result if ALP is not constructed and Indian water rights displace existing agricultural uses (lowering the property values of the latter). This is double counted, since the effects on the land values (from which property taxes are derived) have already been included. In any case, the property taxes are only a transfer within the region and thus, irrelevant to a regional benefit/cost ratio.

The above are major errors, not of judgment, but of method. They can not really be disputed as they are **mistakes**. There are a few judgmental issues which I believe are worth mentioning, although these are not as serious as the above. These include:

- BE recognize that the local economy has changed since 1968 (or 1980, for that matter). Durango housing now has an average price on the order of $170,000 - only one indication of the rapid growth and shortage of housing in the area. Yet BE state "Another social cost that might occur would be temporary inflation of rents and housing costs during construction. Within the scope of this study it would be impossible to estimate if, or the extent to which this would occur; and given current growth in the region, it would be impossible to determine how much of the escalation was directly tied to the project construction" (4-11). Such an estimate is difficult but not impossible. There is no question as to whether or not there would be an impact. The influx of 700 workers (and some families) into a region with a shortage of housing and a lower than average unemployment rate (particularly in the construction industry) will impose costs on the region. There is no issue as to whether or not there would be an effect, only on its magnitude.

- BE include forgone litigation costs as a project benefit of ALP. They include litigation costs to the nation as well as the region, thereby violating their regional focus. There is the further problem that litigation is likely regardless of whether or not ALP is constructed. The legacy of decades of previous litigation suggests that attempts to construct ALP will also entail future litigation expenses.

- The recreation values used in BE can not be supported by evidence. Two-thirds of the use of the new recreational facility are estimated to come from outside the region, a highly suspect assumption given the other lakes in the region. The value per day of rafting use lost due to ALP actually is exceeded by the value per day of flatwater use created by ALP - a dubious valuation. There is even the suggestion that displaced rafting expenditures would most likely be spent "most likely on another activity in the region - say flatwater recreation on McPhee Reservoir" (4-16). I know of know credible evidence that whitewater rafting and flatwater recreation are significant substitutes.

Conclusions

BE have overstated the regional B/C ratio. It may exceed one, but I can not be certain given the errors in their analysis. The BE study is not professionally competent. In fact, it is poor enough that it should be redone at no expense to its sponsors. I regularly consult with major multinational clients and I find BE to be inadequate as a final deliverable.

More importantly, the regional focus of BE is of primary interest to the region, but only of secondary interest to Congress. Congress **must** focus on the national economic effects, otherwise there can be no safekeeping of the nation's resources. From a national point of view, this is still a project with a present value of **-$232million** (at best). Settlement of Tribal water rights claims is a worthy goal. As I have testified previously, the nation can save $116 million by offering a $116 cash settlement to the Tribes in place of ALP, a project which, in the end, may not settle these claims unless Phase II is constructed (and there is no federal funding for that). If this new Congress stands for any principles they should include the ability to cut through bureaucratic red tape and suggest such a superior alternative, and the **promise** to safeguard our nation's resources and not squander them on projects which benefit a small number of people at everybody else's expense.

I would be happy to discuss any of this further.

Sincerely,

Dale Lehman
303-247-7204

Mr. MYERS. Thank you for your testimony. And the additional statement will become part of the record of these proceedings.

Thank you, Mr. Black. Thank you.

Merle Boyd, second chief of the Sac and Fox Nation, Stroud, Oklahoma. Not here?

The next, I think Alan Rumbaugh, is Alan Rumbaugh here? Anyone want to testify?

Mr. BLACK. I can take more time.

Mr. RAIL. We will go and get done.

Mr. MYERS. Okay, come up. I think possibly Bill Orton wanted to be here, I think.

Mr. RAIL. Do you think he will be here any minute?

Mr. MYERS. If he doesn't come any—you are not due until 3:10, so possibly I think out of fairness to him——

Mr. RAIL. Okay.

Mr. MYERS. Thank you, though. I appreciate your generosity here. I thought we were right on—Mr. Boyd was to be here right now, but—Ray, have you got—

Mr. KOGOVSEK. Mr. Chairman, we are waiting for our Congressman, and he should be here in about five minutes.

Mr. MYERS. Well, the committee will stand in recess. Did you have—I think your statement will be put in the record. I thought the next was here. We try to keep on schedule. But if you want to take another two minutes here.

Mr. BLACK. That is okay. Thanks.

Mr. MYERS. Okay. Your statement will be put in the record. We try to stay on. We are going to be here to 11 o'clock tonight, but we don't plan to be in committee at 11 o'clock.

Well, the committee will stand in recess temporarily then, until somebody comes up, wants to testify. That doesn't happen very often.

[Recess.]

WEDNESDAY, MARCH 29, 1995.

COE BUDGET

WITNESS

KEITH LEAVITT, MANAGER, PORTS AND TRANSPORTATION DEVELOPMENT, OREGON ECONOMIC DEVELOPMENT DEPARTMENT

Mr. LEAVITT. We are a little early.

Mr. MYERS. Yes, you are. Your prepared statements will be placed in the record. So you may continue as you like.

Mr. LEAVITT. Thank you for having us, Mr. Chair. For the record, my name is Keith Leavitt. I am the manager of the ports and transportation development section of the Oregon Economic Development Department. I do have a full statement that I will not read and I will be brief.

I am speaking today on behalf of the governor of the State of Oregon, John Kitzhaber, as well as Oregon ports. There are 23 ports in Oregon aligned along the Oregon coast and up the Columbia River. And we are here to really support the activities of the Corps of Engineers as they have been traditionally and as they are—as the fiscal year 1996 budget is before you.

Oregon is very much relying upon the activities of the Corps of Engineers to maintain the access to the international trade market that our State and our region depends so much upon. There are really just four specific issues that I will bring to your attention, and then I will kick it over to Mr. Rumbaugh here.

The first is the Lower Columbia River channel deepening project, the Coos Bay channel deepening project, operation and maintenance dredging needs as a whole for the State, and then minimum dredge fleet issue. I will start with the Columbia, the Lower Columbia River.

That really is—the Lower Columbia deep draft channel is really kind of the lifeblood of our economy, for our region. I am sure you have heard from others who have said the same thing. And we have statistics that show about 20 percent of our work force in the region depends on international trade. And we have a deepening project for that channel that would deepen the channel from 40 to 43 feet. Very important, it is in the feasibility study stage. I administer the program at the State level that provides a match for that as well with the Corps of Engineers.

The Coos Bay channel deepening project, Coos Bay is on the southern Oregon coast, very much a timber- and fishing-dependent community, and has been hit hard over economic downturns in the last several years. This is a project that has gone on for about 11 years now. They have gone through every hoop there is to go through to make it to this point, which is done with the feasibility study, that is totally completed, has been.

This project was to be authorized in the WRDA 1994, which of course never made it out of the Senate, and so of course we are very concerned about that. The State has also put $3.6 million into a fund that is awaiting to be matched from the Federal level. And I am at the State legislature every day all the time trying to make sure that those funds stay there. That community has been through a lot.

We really hope that if there is any opportunity for the authorizing committees to produce a WRDA in 1995 that might be limited, we really would appreciate that. Operation and maintenance dredging from the Corps is—it is critical and we are very concerned about the policies forwarded by the Corps that would remove operation and maintenance dredging from what they would deem channels and harbors that are not nationally significant.

We would like to be a part of a debate that would decide what real national significance is, and would hope that this kind of policy would not be implemented in the budget this time and that we enter into a good debate over the issue over the next few months. And then also minimum dredge fleet issues, there are other issues that are in my testimony and I won't go through those.

We clearly in the Northwest depend upon the Corps of Engineers' minimum dredge fleet. We have two hopper dredges that serve a vital function, both in competitiveness and in emergencies. We have very unique channels that oftentimes need—have high maintenance. And we depend upon that very much and would urge that if any set-asides are put for the private fleet this year, that it be met with great restraint by this committee and the authorizing committees.

With that, Mr. Chair, I will kick it over to Alan Rumbaugh from the Port of Coos Bay, and I really appreciate being here.

[The statement of Mr. Leavitt follows:]

Oregon
ECONOMIC
DEVELOPMENT
DEPARTMENT

Testimony of

KEITH LEAVITT
Oregon Economic Development Department
Representing

THE STATE OF OREGON

House Appropriations Subcommittee on Energy and Water
March 29, 19095

Mr. Chairman and members of the subcommittee, I am Keith Leavitt, Ports and Transportation Development Manager for the Oregon Economic Development Department. I appreciate the opportunity to testify on behalf of Oregon Governor John Kitzhaber about the proposed fiscal year 1996 budget for the Army Corps of Engineers, and the impact of this budget on Oregon ports and the communities they serve. My testimony today discusses several aspects of Corps activities in Oregon, including the:

- --proposed Columbia River Channel Deepening project;
- --proposed Coos Bay Channel Deepening project;
- --importance of dredging to our state's economy;
- --importance to Oregon ports of maintaining the Corps of Engineers Minimum Dredge Fleet;
- --restoration and improvement of the Newport breakwater;
- --our support for the Corps of Engineers Operations and Maintenance budget;
- --our concern over plans to terminate Corps Operations and Maintenance dredging of smaller ports

Few places in this country are the budget and policies of the Corps of Engineers reviewed as carefully as in Oregon: by our Congressional delegation, state officials and legislators, mayors, county commissioners, and by port commissions and community leaders. We know that much of our state's economy revolves around a functioning and prosperous coastal and river ports system.

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Governor John A. Kitzhaber
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PORTS, WATERWAYS, AND CREATING JOBS THROUGH EXPORTS

For example, our ports along the Columbia River know that cargo using their facilities and moving down this "river highway" may well have come from hundreds of miles to the East. The Columbia River transportation system reaches far beyond its shores--to Montana, to the Dakotas--even to Minnesota. Oregon is working to diversify its exports, adding new products to the mix at each opportunity. We in Oregon welcome this trade through our federal river system and understand its impact to the Pacific Northwest regional economy.

A Corps of Engineers budget which fails to address the pressing needs of our ports and waterways will impact the competitiveness of American exports in global markets. Those markets may be primarily Asian markets for the Pacific Northwest; but they are also markets in Europe, Latin America, the Middle East and Africa for river commerce and ports elsewhere in the U.S. The Corps budget should be viewed in this broader transportation and competitiveness context.

At the same time, the Corps mission addressing increased environmental protection also is one of great interest to us. I encourage this committee to act to ensure that Corps funding for FY 96 meets the needs of environmental programs of the Corps.

I ask that Congress encourage the Corps to act promptly and consistently on permits, applications, and in other environmental functions. Too often, activities in the environmental arena have been marked by delays and slow motion. We hope recent Corps efforts to decentralize more and more responsibility will lead to quicker and more predictable decision making on questions involving environmental impact.

PORTLAND CORPS DISTRICT OFFICE OFFICIALS

The men and women who work in the Portland District office of the Corps deserve recognition for their professionalism. Recent changes in the Corps have resulted in increased efficiency on Corps projects, and in a team approach with port communities and the State of Oregon. Both the ports industry and the State very much appreciate the excellent working relationship we have with the Corps professionals in Portland.

COLUMBIA RIVER CHANNEL DEEPENING STUDY

As you know, the Pacific Northwest has seen a tremendous decline in timber and salmon fishing industries. We are the battleground for the fight over the Endangered Species Act and are in a constant struggle to assure the responsible use of our natural resources. The Columbia River system is critical to our region's economic ability to remain competitive with the rest of the world.

The importance of the Columbia River to the Northwest regional economy cannot be overstated: a third of U.S. exported wheat moves down the Columbia River, forming the fourth largest bulk export system in the country. In 1993, some $11.3 billion in commodities moved on the Lower Columbia River's deep draft channel.

We view the proposed channel deepening project as the key to our region's economic future. The feasibility study formally began on July 1, 1994, and is scheduled through 1999. Prompt but thorough action on the feasibility study is needed. We hope Congress will ensure that adequate funds are provided, and that the Corps will have the tools to move this study through its review process as expeditiously as possible.

There is a critical need to reform the cost sharing process for feasibility studies. Under current law (Water Resources Development Act of 1986, Section 105), the local sponsor signs an open-ended agreement with the Federal government. The cost estimates can rise dramatically (they often do), and the local sponsor is responsible for 50% of the cost if they want the project to continue. The only effective control over cost under current law is for the local sponsor to pull out of the study. The lower Columbia River ports of Portland, Astoria, and St. Helens in Oregon, have joined four ports from the State of Washington to propose changes to this process. The proposal would amend the Water Resources Development Act of 1986 (WRDA) to provide that costs for feasibility studies may be amended only by mutual agreement of the federal government and non-federal sponsor. The purpose of the amendment is to put the local sponsor on a more equitable footing in dealing with the Federal government on the cost, scope, and risks of the study. Although this proposed change is an issue for the authorizing committees, we use every opportunity to echo our support for this creative way to strengthen the partnership for local sponsors.

COOS BAY CHANNEL

Coos Bay and the southwest Oregon communities are working to diversify their economies. They saw as far back as the early eighties that a key to diversification is to deepen the shipping channel from the Pacific Ocean to the municipal waterfront. The Coos Bay Channel Deepening project began in 1983 and has undergone a very expensive and exhaustive environmental study and review process lasting nearly eleven years. This project will allow larger ships to call at the International Port of Coos Bay and make the community a more competitive Pacific Rim port. We are happy to report that in 1994, the final report was complete, and this project was finally ready to begin construction. The State of Oregon committed $3.6 million to fulfill our share of the cost.

Last year the authorization for the federal cost of construction for this project was part of the 1994 Water Resources Development Act (WRDA) which traditionally passes every even numbered year. The House passed WRDA in 1994, but to our dismay, the Senate adjourned without final action. We urge Congress in the strongest of terms to pass a limited WRDA this year with the Coos Bay project included in it. The communities of southern Oregon have come too far, and invested too much, to have this project go undone.

IMPORTANCE OF DREDGING

At a time when this country's exports are rising, we want Columbia River exports to grow and diversify. But if deeper draft vessels cannot call at Washington and Oregon river ports, or at Coos Bay, or if vessels must depart less-than fully loaded to avoid drawing as much water, then per unit transportation costs increase for that cargo. As a result, these American exports are less competitive.

Dredging ensures that U.S. cargo moves into international commerce via an efficient harbor and river transportation system. River transportation is the most fuel-efficient and least environmentally damaging mode by which cargo moves in this country. Our channels must be kept open so that trade will increase and American jobs are created.

Because the President and Congress both have signaled their interest in promoting U.S. exports, keeping navigation projects such as those for the Columbia River and Coos Bay moving as quickly as possible through the review and construction process is a way to help us expand trade. The sooner these channels are deepened, the quicker we can see our exports climb--and our trade deficit fall.

Those of us supporting river and coastal port dredging also know that it should occur within a framework of environmental protection. While there are tons of clean dredged material for every pound of seriously contaminated sediments, we need to make sure that guidelines are set to protect the environment. Where truly contaminated sediment is found, caution is appropriate to ensure that public health is not put at risk by dredging plans.

MINIMUM DREDGE FLEET

The remaining Corps dredges which form the Minimum Hopper Dredge Fleet are important to our state ports. The *Essayons* and the *Yaquina* dredges should not be sacrificed as part of an effort to phase out the Corps Minimum Dredge Fleet.

These two hopper dredges have responded exceptionally well to dredging needs that crop up with alarming regularity in the Pacific Northwest. Emergency response by the Army Corps of Engineers (ACOE) dredges in these cases has been first-rate. Availability of these dredges also has helped keep the bids of private contractors from escalating due to total control of all Operations and Maintenance (O&M) hopper dredge market by the private dredging industry. Any effort to place the ACOE dredges on stand-by status, or to make permanent any specific set-aside of hopper dredge O&M work for the private sector dredge fleet should be met with great restraint.

If Congress provides a FY 96 special set-aside of added cubic yards of work for the private dredge fleet, I suggest that it be less than in the past. The Corps fleet should be allocated as much work as it had before enactment of this special set-aside, so that its per-yard costs are not pushed up because of a reduction in working days, rather than on their ability to perform.

NEWPORT BREAKWATER

The Newport breakwater was built in the mid-1940's and serves to protect the inner harbor, and allow the port to grow to be home to a significant commercial fishing fleet. The breakwater, nearly 50 years old, now needs major repair and extension. Carrying out this project will mean better protection for those vessels using the inner harbor, and allow for continued growth of this important West Coast fishing port.

FULL FUNDING FOR CORPS OPERATIONS AND MAINTENANCE WORK

Operations & Maintenance (O&M) work is critical to America's water infrastructure. Without adequate O&M funding for maintenance dredging, the economic impact to Oregon's coastal and Columbia River ports would be devastating. We are closely monitoring the various policy issues recently sent forward by the Corps. I urge this panel to provide sufficient Corps funding in its O&M account to see that America's ports and rivers are dredged as needed in FY 96. Plans to terminate Corps O&M dredging of smaller ports would have a severe impact in many smaller Oregon coastal ports. We encourage this Committee to reject this Corps initiative until a thorough study can be made which examines the ramifications of this proposal.

Plans by the Corps to terminate their Continuing Authority Programs also appear to be short sighted. In the past, the Corps has been proud of the fact that their smaller projects can be reviewed and constructed without undue delays. Terminating these programs will leave a void and create new uncertainties in keeping our ports and waterways efficient.

SMALLER PORTS IN THEIR COMMUNITIES

I also wish to add some comments about the important roles that small ports play in this country's more rural communities. Ports often are the principle mechanism for economic development in these communities. Oregon's smaller towns along the Columbia River and on our coast have faced uncertain times in recent years.

Oregon port commissioners and managers are working together on various local economic and environmental programs and issues. Our citizens know that ports can provide economic opportunities--a chance to broaden their community's economic base. However, they are also aware that if their ports are not dredged, chances to improve their communities would be lost. Continued O&M dredging at all Oregon ports is an important factor in seeing that these goals are realized.

PORTS ARE CRITICAL TO U.S. INFRASTRUCTURE

As members of this subcommittee, I am sure you know very well that ports are an integral part of the U.S. transportation system. Low cost water transportation is an important ingredient in keeping U.S. products competitive in world markets.

I would urge national policy makers to "think ports" when they think transportation. Funds to upgrade the U.S. highway system should be spent with an understanding that an inefficient port system can create a bottleneck to moving goods into export markets. Put another way, we must make sure that products do not travel at a world pace on our highways or rails as far as dockside, then only to move through the harbor and river system at a slower pace before entering a fast, efficient open-ocean transportation system. Whenever that occurs, American products entering global markets are penalized.

We want the advantage in cost competitiveness provided when our waterways, rivers and ports all operate at the same efficiencies as do our highways, rail and ocean carriage of goods.

CONCLUSION

Balancing spending priorities in a time of shrinking resources is a difficult task. I urge you to reallocate funds to allow this country's ports and waterways to continue to support local communities, and competitively position this country in the global economy.
In closing, I want to thank both the new chairman and his distinguished predecessor, and all the Committee members for their attention and understanding of the various issues I have discussed here today. Your decisions heavily impact the State of Oregon.

Thank you for the opportunity to address this committee.

Mr. MYERS. Well, I think Mr. Bunn, a member of our committee, intended to be here. So if you don't mind, we will wait. Because we are ahead of schedule, and I think he plans to come back. He had another meeting, so please wait until he gets here. Because I think he wants to be present when you do make your testimony. I apologize for letting you go here, but he does want to be here. So if you don't mind, you reserve then.

Mr. RUMBAUGH. Fine, thank you.

Mr. MYERS. We are still waiting for the 2:50. Anybody calling him?

Mr. KOGOVSVEK. Mr. Chairman, your staff is making a call.

Mr. MYERS. I appreciate Oregon willing to go here now, but I think we will wait for Mr. Bunn to get back. I did make a commitment. This is alumnus day here. Good to have you back now.

Well, the committee will stand in temporary recess again then.

[Recess.]

[The statement of Mr. Duncan follows:]

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TESTIMONY
FOR
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS

March 23, 1994

Mr. Chairman and members of the subcommittee, my name is Angus Duncan, and I am chairman of the Northwest Power Planning Council. The Council was authorized by Congress in 1980 and created as an interstate compact by the states of Idaho, Montana, Oregon and Washington. Its purpose is to develop a 20-year regional electric power plan to ensure the Pacific Northwest an adequate supply of power at the lowest possible cost. The plan is designed to ensure that the region only acquires resources it needs and that it acquires the lowest-cost resources first. The Council also was directed to develop a major program to rebuild fish and wildlife resources that have been harmed by hydroelectric development in the Columbia River Basin. The Council carries out its responsibilities under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (P.L. 96-501).

I appear today to present testimony on the Fiscal Year 1996 budgets of four federal agencies. The four agencies are the Army Corps of Engineers, Bonneville Power Administration, Bureau of Reclamation, and the National Marine Fisheries Service. The last one is within the jurisdiction of another appropriations subcommittee.

Our interest in these budgets stems from the fact that each of these agencies implements, finances or regulates activities that are part of the Council's Northwest Power Plan and Columbia River Basin Fish and Wildlife Program. Through these and several other federal agencies, the United States enters into a partnership with electricity ratepayers of the Columbia River Basin to pay for measures designed to protect, mitigate and enhance fish and wildlife that have been impacted by hydroelectric dams Ratepayers finance most of this work, but in the current fiscal year, the federal contribution again will top $100 million. Congress recognized in the Northwest Power Act that anadromous fish of the Columbia River Basin are important to both the region and the nation. Both the Council's power plan and its fish and wildlife program were developed under the mandates of the Act, in which Congress provided direction and the framework for the Council as a policy and planning body to implement its actions through these federal agencies.

The power plan, last amended by the Council in 1991, is intended to assure the region of an adequate, efficient, economical and reliable power supply, as required by the Northwest Power Act. The plan incorporates a broad and detailed review of electrical resources that balance sometimes-competing attributes. Actions derived from this careful review chart the least expensive (both in economic and environmental terms), yet most flexible course the region can take down the uncertain path of resource acquisition to meet demand for electricity in the future.

The fish and wildlife program complements the power plan and is designed to protect, mitigate and enhance fish and wildlife, and related spawning and rearing grounds, of the Columbia River Basin that have been impacted by the construction and operation of hydropower facilities. The Council last amended the program in December 1994. It is a comprehensive program that aims to improve the survival of all fish and wildlife populations in the Columbia Basin. As required by the Northwest Power Act, measures in our program are based on the best available scientific knowledge and were developed with broad public involvement. The program includes both immediate and longer-term measures designed to improve salmon survival at every stage of the life cycle. In general terms, these can be divided among the so-called four Hs of human-caused impacts: Hydropower, Habitat, Hatcheries and Harvest.

The Act imposed responsibilities on federal river, land and power agencies to act in a manner consistent with the Council's power plan and fish and wildlife program or to consider the plan and program in their decision-making "to the fullest extent practicable." The ability of federal agencies to meet their objectives under the Act is tied directly to their funding levels and budget priorities.

Corps of Engineers

Again this year, one focus of our testimony is on the need to reduce salmon and steelhead mortality as these young fish migrate down the Columbia and Snake rivers. The Corps of Engineers' proposed budget for 1996 contains adequate funding for continued testing and installation of new or improved mechanical bypass and related transportation facilities at mainstem dams -- Lower Granite, Little Goose, Lower Monumental, and Ice Harbor dams on the Snake, and McNary, John Day, The Dalles and Bonneville dams on the Columbia. The Council supports the proposed budget of $78.8 million for the juvenile fish mitigation program.

However, additional funds should be made available to evaluate and install spill improvements at the dams, including deflectors and slotted spill gates. To improve fish monitoring and provide essential evaluations of fish survival, it is imperative that PIT (Passive Integrated Transponder) tag detectors be installed as rapidly as feasible at the John Day and Bonneville projects.

The Council program provides that mitigation should be planned and put in place where parties are expected to experience disproportionate adverse effects from recovery actions -- including harvest reductions, drawdown impacts, etc. We believe that it is essential to provide these mitigation assurances before actions are taken so that implementation can proceed without misunderstandings and unnecessary or disproportionate losses by affected parties.

Juvenile fish bypass systems and turbine-intake screens at Corps-operated dams:

In 1987 the Council helped develop a consensus among private and public utility interests, Indian tribes, fish and wildlife interests and Bonneville on the need for expedited completion of new and approved fish bypass facilities at all the mainstem dams. This regional consensus resulted in a schedule for completing these facilities by 1994. But this schedule was predicated on funds being available in the federal budget as part of the Corps of Engineers responsibilities. The current schedule calls for completion of the conventional bypass system by 1998 except for The Dalles project.

The Council believes the completion date for bypass facilities must not be allowed to slip again without clear justification, particularly in light of declining salmon runs and the endangered species listings by the National Marine Fisheries Service.

Surface bypass facilities

The Council supports testing, and if beneficial, installing surface bypass systems at the federal hydroelectric dams. These newer systems direct juvenile fish over spillways and may help salmon pass the hydropower dams more successfully and avoid the pressure changes that occur when the salmon go through conventional bypass systems. Funds are included in 1996 to design and test surface collection and bypass systems at Lower Granite and The Dalles. The Corps is also planning to study surface bypass systems at the other mainstem dams. The Council concurs with the projects identified by the Corps of Engineers for expeditious testing and agrees that the final construction decision on the conventional bypass system at The Dalles should be held pending completion of surface bypass testing at that project.

Spilling water over dams to aid juvenile fish migration

The Council also supports the development of a full-scale monitoring program to ensure that spill is carefully monitored and its effects on dissolved gas levels and fish survival are fully evaluated. Monitoring programs should be in place prior to the provision of additional spill and should include an assessment of impacts on juveniles and adults, sub-lethal impacts, and related resident fish, food-chain and cumulative effects. In addition, it is essential that dissolved-gas abatement technologies -- these include slotted spill gates, baffles and spillway flip lips -- be provided expeditiously so that intentional and unintentional spill does not produce excessive dissolved gas levels and that gas levels can be kept within prevailing state and federal water quality limits. Because no funds are earmarked for gas abatement improvements within the 1996 budget, there will need to be an additional allocation of funds in 1996 to expedite completion of these important facilities, particularly at Bonneville, John Day, The Dalles and Ice Harbor.

Passive Integrated Transponder (PIT) tag detectors

To help accelerate essential evaluations of fish survival in the Columbia River system, it is imperative that PIT tag detectors be installed as rapidly as feasible at the John Day and Bonneville projects. The Council puts highest priority on completion. The Corps proposes a schedule to complete installation of these facilities in 1997 at John Day and 1998 at Bonneville. The Council calls for more rapid installation -- by 1996 at both projects. The Council's interest is in having the detectors in place and functioning as early as possible. We need the capability to gather better information on fish survival through the entire river system -- in the lower river as well as in the upper reaches of the river.

Private contractors

Although it appears that adequate funds are available in 1996 for ongoing mitigation activities, the Council is concerned that the Corps' cost and project construction time estimates are often in excess of comparable estimates from private sector engineering companies. In particular, the time required by the Corps for pre-construction work often appears excessive. Therefore, we believe the Corps should increasingly rely on private firms for planning, engineering and design of these critical fish mitigation facilities.

Bureau of Reclamation

As it has in the past, the Council supports the Bureau's Umatilla River Basin Project. This project involves pumping water from the Columbia River to supply irrigation districts, which then leave water in the Umatilla River in order to rebuild salmon populations. To continue construction of the Umatilla Basin Project, $7 million is included in the Bureau's Fiscal Year 1996 budget.

Similarly, the Council supports the Bureau's inclusion of $2 million in the proposed budget to pay for construction of fish diversion screens at the Yakima/Tieton diversion dam. These screens are the last major elements of a group of fish ladders and screen structures built on the Yakima River and its tributaries to improve fish passage conditions.

The Council supports a provision in the Bureau's budget proposal for $15 million -- compared to $5.6 million in 1995 -- to proceed with water conservation and water acquisition measures in the Columbia/Snake basins. These measures are designed to benefit fish survival primarily in the Lemhi, Yakima, and Grande Ronde rivers as outlined in the Council's fish and wildlife program. Funds also are included to pay for acquisition of water, in accordance with state water law, to benefit listed stocks in the Snake River Basin. We also support funds to continue the investigation and appraisal of new water storage in the Upper Snake River that could augment flows for fish.

Bonneville Power Administration

The Bonneville Power Administration is the primary implementor of the Council's power plan and fish and wildlife program. The budget proposed by Bonneville for Fiscal Year 1996, comprised of both operating expenses and capital investments, totals $3.496 billion. This represents less than a 1-percent increase over the current Fiscal Year 1995 budget.

The business plan:

Bonneville is currently developing a business plan which will guide the agency in preparing budgets and priorities for the next six years. The business plan is scheduled for completion in June 1995. This effort is designed to "reinvent" Bonneville and to spur dramatic changes in the way it delivers programs and products. The business plan is aimed at reducing Bonneville costs, unbundling and pricing the agency's products and services, and providing an increased focus on customer service. Because this budget was developed prior to completion of the business plan and the latest round of proposed budget cuts, the 1996 budget and subsequent budgets will change substantially at a later time. As a consequence, it is even more important for Congress, particularly the Appropriations Committees, to continue to provide thorough review and oversight of Bonneville activities.

For capital program investments, Bonneville will rely primarily on debt financing as a means to fund new capital improvements. Bonneville plans to finance most of its capital program in the next six years through bonds issued to the U.S. Treasury, i.e. borrowing authority. Transmission investments make up most of the total with smaller amounts for conservation and fish and wildlife. Based on earlier assumptions, the $2.5 billion transmission borrowing cap would have been reached at the end of Fiscal Year 1997. The conservation borrowing cap of $1.25 billion was projected to be reached during Fiscal Year 2002.

The draft business plan, however, also contains several capital financing initiatives designed to make the current borrowing cap last until Fiscal Year 2001. The initiatives are to identify additional reductions in capital spending through the application of the capital budgeting process; revenue finance certain transmission, fish and wildlife capital investments; to the extent allowable, shift costs from the transmission borrowing authority to the conservation borrowing authority; and utilize third-party financing of capital investments when possible. The Council will be meeting with Bonneville to get a better understanding of the implications of these changes for fish and wildlife and conservation borrowing authority.

Treasury debt and repayment:

The administration budget for 1993 and prior years included a proposal to alter Bonneville's approach to repaying its debt for construction of the region's hydropower system. Bonneville's repayment would be accelerated and the terms of repayment would be changed. Congress later blocked this budget proposal, as it did in previous years.

Due to the need to reduce the federal deficit, this repayment acceleration issue may be included in future budgets. Therefore, it could be an issue in the 1997 budget and appropriations process. The Council has vigorously opposed changes in repayment policy in the past, and the Congress has dropped similar proposals from the budget.

To help address this issue, the Council supports legislation to "buy-out" or refinance Bonneville's repayment obligation on appropriated debt. As you know, legislation introduced last year to refinance Bonneville debt was dropped in the House due to budget scoring and bill drafting problems. New legislation has been introduced this year in both the House and Senate. This version seems to correct flaws in the earlier draft. It contains debt refinancing benefits while protecting Bonneville's ability to improve and update the hydroelectric system.

Due to current, relatively low interest rates, there appears to be a window of opportunity to refinance or buy out some of Bonneville's existing appropriated investments. If designed properly, implementation of the proposal could remove the old arguments used to advance repayment reform by refinancing the debt at current market rates. This would help overcome allegations that regional interests are being subsidized, and it would resolve annual battles over the debt repayment issue. It could remove a major source of uncertainty that has been plaguing the region for the past decade.

Government corporation:

Legislation is being proposed in the administration budget to make Bonneville a wholly owned government corporation. This proposal would increase Bonneville's flexibility over personnel, procurement, financial, budget, and litigation functions. It also allows Bonneville to carry out more effectively its existing responsibilities and to compete more effectively in increasingly competitive electric power markets. Bonneville's budget indicates that the agency has "already obtained administrative relief from significant barriers in these areas as a National Performance Review reinvention laboratory. This legislation would make permanent the relief obtained administratively as well as relieve the agency from additional administrative burdens which are statutory in nature." Bonneville estimates $30 million in cost savings. The Council held regional hearings last year on two draft corporation bills. Those hearings indicated general support for saving money by changing personnel, procurement and certain civil litigation requirements. There was a lack of regional consensus on whether Bonneville would remain as accountable to the Congress and the region if it becomes a corporation. It is unclear what changes will be made to that bill. The administration is still developing its corporation bill. The Council looks forward to working with Bonneville and the administration to develop a focused bill which fosters greater Bonneville efficiency while maintaining Bonneville's accountability.

Energy Conservation:

The Council's 1991 Northwest Power Plan calls for immediate acquisition of all cost-effective efficiency improvements. The plan identifies at least 1,500 average megawatts of efficiency gains to meet regional load growth over the next decade. Bonneville and its public utility customers' share of the goal is at least 660 megawatts and Bonneville has maintained strong performance in moving toward this long-term objective. Bonneville's draft business plan states that it is committed to acquisition of all cost-effective conservation, and it is proposing a reinvented approach for doing so. The reinvention, however, would have relied on utility responses to tiered rates and new products and services which will not be available during 1996. Bonneville may need to find other mechanisms during 1996 in order to meet its share of the regional conservation goal, and we will work with them to accomplish this objective.

Renewable energy resources

The Bonneville budget proposal also includes funding to continue work with utility partners on four renewable energy projects -- two wind projects and two geothermal plants. Renewable resources are priority resources under the Northwest Power Act and the Council's power plan calls on Bonneville to initiate wind and geothermal demonstration projects. Accordingly, the Council supports continued funding of these priority resources as part of Bonneville's generation portfolio..

Fish and Wildlife:

Bonneville's proposed fish and wildlife budget allocates about $87 million for fish and wildlife activities. Bonneville has maintained a relatively constant budget for these activities since FY 1992. From this amount, Bonneville must meet its obligation to increase by over $7 million its annual payment for the interim Washington Wildlife Agreement. It must also fund a number of resident fish mitigation projects, tribal mitigation projects and additional activities to recover listed salmon runs. Bonneville's internal projections indicate that the proposed funding level is not adequate to meet these obligations. The Council will continue to work with Bonneville to identify implementation schedules, prioritize critical activities and find adequate funds to fully implement the Columbia River Basin Fish and Wildlife Program.

The 1996 proposed budget also contains a statement that legislation will be introduced to transfer funding for Mitchell Act hatcheries from the National Marine Fisheries Service to Bonneville starting in 1996. The Council opposes this shift in funding. If this legislation passes, an additional cost of at least $14.1 million per year will be picked up by Bonneville ratepayers to operate the 25 hatcheries on the lower Columbia River. Currently, $18.5 million is being spent for Mitchell Act activities, and the region's fish agencies and Indian tribes are calling for increased funding. Ratepayer funding of these activities would overturn the approach used for more than fifty years. It would add to Bonneville's expenses and the agencies' financial stress.

National Marine Fisheries Service

As proposed last year, the Administration budget provides no funding for the Mitchell Act hatcheries -- 25 hatcheries that now release over 100 million juvenile salmon and steelhead into the Columbia system. These hatcheries produce 50-70 percent of the salmon released into the Columbia River. Mitchell Act funds also support a series of fish passage facilities and water diversion screens in the basin. No funds were requested by NMFS in the 1996 budget proposal for any of these activities. The final 1995 budget approved by Congress included $18.5 million for Mitchell Act activities: $10.3 million for operation of hatcheries, $1.7 million for hatchery maintenance, and $6.5 million for the fish screen program. The Council urges continued support for Mitchell Act hatcheries and the fish screen program in 1996.

Additional funds of $15 million could be used in 1996 to continue installation of tributary and mainstem diversion screens. As noted in the Council's fish and wildlife program, these screens are vital to fish survival, especially those upriver stocks now listed as endangered. As one of the highest priorities, we need to accelerate the screening of mainstem water diversion intakes and pumps to ensure that migrating juvenile salmon are not killed by being pulled into unscreened or inadequately screened pumping facilities. This problem should be addressed and resolved by the end of 1996.

Mr. Chairman, thank you for this opportunity to share our concerns with you. We sincerely appreciate the thorough consideration that this subcommittee has given to the needs of the Pacific Northwest. Now, if there are questions I would be pleased to answer them.

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WEDNESDAY, MARCH 29, 1995.

ANIMAS–LA PLATA AND DOLORES PROJECTS

WITNESSES

HON. SCOTT McINNIS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO
JUDY KNIGHT FRANK, CHAIRMAN, UTE MOUNTAIN TRIBE
LEONARD BURCH, CHAIRMAN, SOUTHER UTE TRIBE
CHUCK LILE, DIRECTOR, COLORADO WATER CONSERVATION BOARD
JOHN PORTER, SOUTHWESTERN WATER CONSERVATION DISTRICT
LARRY DEREMO, DOLORES WATER CONSERVANCY DISTRICT
JIM ISGAR, ANIMAS–LA PLATA CONSERVANCY DISTRICT

Mr. MYERS. The committee will come to order. We have our colleague here. Jim, you are next. Scott, your group is here.

Mr. MCINNIS. Yes, Mr. Chairman.

Mr. MYERS. If you will introduce them, you will be recognized for the next 15 minutes. And each of your statements, your prepared statements, will become part of the record. And you may proceed as you like. Thank you.

Mr. MCINNIS. Thank you, Mr. Chairman, and thank the committee for the courtesy. I would like to introduce at this time Chuck Lile, the Chairman. Leonard Burch. And there is Chuck. Here we are. Chairman Judy Knight Frank, sitting immediately to my right. The Chairman of the Southern Ute Tribe, who I just briefly introduced, Leonard Burch, is second to my right. Both of these——

Mr. MYERS. We know Leonard.

Mr. MCINNIS. Yes, you do, and they both have long distinguished service to this country as well as to their respective tribes. Jim Isgar, Isgar, excuse me, with the Animas–La Plata Conservancy District; John Porter with the Southwestern Water Conservation District; and Larry Deremo with the Dolores Water Conservancy District.

Mr. Chairman, if you put my complete statement in the record, I would really appreciate it. I would like to say a couple things.

First of all, let me tell you, I cannot take stronger exception than I am right now to the previous statements submitted by Mr. Miller of the State of California in regards to this project. This project is a project that was promised to the tribes and to the people of this country many, many years ago. It was one of the projects that was not built.

We, as you can remember, Mr. Chairman, back in the 1980s, frankly, we had dropped the promises to the Indian tribes and the Indian tribes certainly had an option at that point in time of litigating this issue, of which clearly we would have lost. In an effort, and I see Mr. Bevill who has been a kind and strong supporter, I think, in the past to this project, as you can remember that history, we then entered an agreement with the Indian tribe. We entered into treaties, with contracts with these people, and said we will complete this project.

Mr. MYERS. If you will yield, I understood it was similar to a treaty, and I got shot down, or tried to get shot down the other day. This is not a treaty. Treaties are between nations. But it is the Indian nations, isn't it?

Mr. McInnis. Absolutely.

Mr. Myers. I think I consider it—it may not—well, I am not going to talk to the legality of the treaty. Thank you.

Mr. McInnis. We can put all the legalese aside. The fact is, we gave them our word, and they took our word. They have respected their end of the agreement, and frankly, the United States is beginning to—or I am questioning whether or not we are going to keep our end of the agreement.

I think and am confident that this committee will allow us to do that. But I am very concerned that someone like my colleague, of whom I respect, Mr. Miller from California, makes the kind of statement he does, because I think it is without much merit.

That said, Mr. Chairman, I would appreciate the committee's support, continued support for the obligations that we have made to the Indian nations, and I would at this point in time ask at the discretion of the Chair to hear from the chairmen of the respective tribes.

[The statement of Mr. McInnis follows:]

STATEMENT BY THE HONORABLE
SCOTT McINNIS
BEFORE THE HOUSE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

March 29, 1995

SUMMARY: ANIMAS-LA PLATA PROJECT; $14.1 MILLION

Mr. Chairman, I appreciate the opportunity to testify, for the third year, before the subcommittee to express my support of the Animas-La Plata project. I appreciate your continued involvement in this process as the Southern Ute, Ute Mountain Ute Indians and the federal government work towards the completion of the terms of the Colorado Ute Indian Water Rights Settlement Act.

The construction of the Animas-La Plata project is a major element of this settlement. This Agreement was reached in 1986, and enacted in 1988. The Southern Ute and Colorado Mountain Ute Indian Tribes negotiated in good faith with the United States to reach this settlement. This treaty stands as our promise that the Federal government would be a partner to Southwestern Colorado and Northern New Mexico in an effort to best utilize the limited water resources in the area. Making good on promises to Native Americans is a top priority, and so I am asking again for your further assistance in making that Act ring true, not hollow.

Simply put, the United States government has made a commitment, a responsibility to the Tribes, that it must fulfill.

If the project had followed its scheduled plan for completion we would not be here today. However, bureaucratic red tape has resulted in significant construction delays. It has never been suggested that any environmental laws should be neglected. There is a long history of records that reflect the efforts of the Tribes to comply with every statute, including the National Environmental Policy Act, the Endangered Species Act and the Clean Water Act.

The 1988 Colorado Ute Settlement is an example of the great success that can be achieved when the Tribes and state water communities work together. Failure to provide the necessary funding to realize the terms of this agreement will send a negative message to other States and Tribes that the U.S. Congress does not support these efforts.

All parties involved in this process will need to work together to complete this project. This includes your Committee and its members, the Southern Ute Tribe, the Ute Mountain Ute Tribe, and the Department of Interior with Secretary Babbitt. I ask that you consider funding this project at $14 million, which is $8.9 million above the Administration's request. I believe this level of funding is necessary to complete this project as promised in the Settlement Act.

In addition, I would like to take this opportunity to recommend that you keep a watchful eye on the Bureau of Reclamation as it moves towards completion of the Dolores Irrigation Project. The Project is nearly finished, and its value to the region is tremendous. However, in dealing with the Dolores Water Conservancy District in working to complete the Project, the Bureau has attempted to leverage one remaining issue against others so that the District is expected to carry much of the completion burden. I ask that you assist the District in its efforts to work with the Bureau and require it to resolve the remaining issues in a responsible manner.

Thank you.

Mr. MYERS. Your show, Scott.

Mr. MCINNIS [presiding]. First, Judy Knight Frank, Madam Chairman.

Ms. FRANK. Thank you. I thank you for the time you have given us once again and for all the support you have given us. This committee has, I think, carried the responsibility of the United States Government. We have a Colorado Ute Indian water right settlement that was signed in 1988, and we viewed this as a Contract With America.

I hear remarks of Contract With America. I think that is—we as Indian tribes have always had contracts with America in the way of treaties. And now we have another. And I—what I see is history repeating itself in the way that Indian tribes have been treated. We have made treaties, we have been—we have given up certain things in return for certain obligations from this country, and we have—we have always lost out. And I see that again, and I don't think it is right in this day and age.

I believe that these—the fulfillment to the settlement should be done. The Animas–La Plata is part of that water right settlement, and we haven't started construction yet. It is very troubling. We have a lot of problems with environmental groups, but they don't realize and I don't think they have been in our shoes. Had they been, they wouldn't be making the statements that they do.

We also have the Dolores project, which brings water to my reservation, the Ute Mountain Ute reservation, which is right in the southwestern corner of the State of Colorado. Before the water settlement was done, we were without water. We had to haul our water. And you know, you have been there, you saw it. The State of Colorado, as part of the cost sharing, you know, they would pay for the pipeline coming to the reservation. So now we have water that we can drink.

We are finally coming into the rest—you know, where the rest of the country has been. And yet it is in the 1990s. This, I think, is just unrealistic. And people should understand that. We are trying to complete the Dolores part of the settlement which is bringing water to our reservation, and it is providing an irrigation project.

With the help of this committee, we have been able to get 14 million, but we are lacking 10.2 to finish the project, and make it a profitable project for my people. The water receipts settlement does state it has to be profitable. We have tried funding from different sources, but we are almost 50 percent complete. We are in need of 10.2 to complete it. If we could get funding in that amount, it would be one of the first completed projects in Indian country.

And I think that when the United States makes these agreements, that they are—they are not looking at just throwing their money away. If we do not get our 10.2 that is pretty much what the tax—I heard taxpayers saying throwing their money away, that is what I consider throwing their money away, when you don't fulfill an obligation. And that will—it provides jobs and educational opportunities for my people.

But with the water rights settlement, our community has really grown. Some day, when you have an opportunity again, come out and see. We have a lot of things going because we finally got water to our reservation. But our settlement is not complete. We need the

10.2 to complete it. We are facing deadlines. We did say we will not accept the water because we have some deadlines in our agreement. They should mean something.

We have a deadline in the Dolores portion, which was January the 1st. We have a deadline in the Animas portion, which is 2000. And those are coming up pretty fast. So I thank you once again for the time that you have given me and for the support that you have given us through the years.

Thank you.

Mr. McINNIS. Mr. Chairman, move very quickly to Chairman Leonard Burch, who is the head of the Southern Ute Tribe.

Mr. BURCH. Thank you. For the record, my name is Leonard Burch, tribal chairman of the Southern Ute Tribe. I have with me a member of the tribal council, Marvin Cook—stand up, Marvin—because we are the official spokesperson for the Southern Ute Tribe.

And once again, Mr. Chairman, Members of the committee, I am pleased to appear before you again. I bring greetings from the tribal council for your many support that you have given us. And as my fellow chairperson, Judy Knight, mentioned, about the need to comply with agreement and the Contract With America.

As we put the word out here, our Contract with America starts way back in the 1800s. My people, with treaties, you mentioned treaties, and the water rights, the issues that we were promised. And certainly the Animas–La Plata project was authorized back in 1968. And tribal leaders before my time came before the committees of Congress to testify for this project. And I have been coming back here ever since 1966. So you see how long I have been following this project.

But we feel, we heard testimony that they should be downsized, it should be alternatives made and looked at, and also make it an all–Indian project. But the Southern Ute Tribe, the council at that time, looked at all different alternatives. I think there was three alternatives that were looked at. But it was rejected by the council because we need to work together in southwest Colorado because of our checkerboarded reservation. We live with our non–Indian neighbors and work with them. So that is what we want to continue, but talking about only Indian project, that is not the way we want it. So we are back here again to request additional assistance to keep the project on line.

Right now we are going through the NEPA compliance with the requirements that are in the act that was passed after the authorization of this project. But we are complying with it. The two Ute tribes under 638 contract is working along with the Bureau of Reclamation staff to complete this NEPA work. So we hope when that is completed, that we can go move into the construction of the project Because it is a long time coming.

So my appearance and the Council's appearance before us is asking for additional funds to get the project on line, because we, the tribes, don't want to go back into the courthouse to litigate, because it is a costly situation as we all know. We want to continue to move forward and get the Water Rights Settlement Act working Because we were promised and we negotiated it of getting water to develop our lands and for our people's future.

Thank you very much.

Mr. MYERS. Thank you.

[The statement of Mr. Burch follows:]

STATEMENT
of

LEONARD C. BURCH
CHAIRMAN, SOUTHERN UTE INDIAN TRIBE

and

MARVIN COOK
COUNCIL MEMBER, SOUTHERN UTE INDIAN TRIBE

before the
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives

March 29, 1995
Washington, D.C.

SUMMARY OF SPECIFIC ACTION REQUESTED

APPROPRIATION OF FUNDS FOR CONSTRUCTION OF THE ANIMAS-LA PLATA WATER RESOURCE DEVELOPMENT PROJECT IN THE STATES OF COLORADO AND NEW MEXICO

STATEMENT
of

LEONARD C. BURCH
CHAIRMAN, SOUTHERN UTE INDIAN TRIBE

and

MARVIN COOK
COUNCIL MEMBER, SOUTHERN UTE INDIAN TRIBE

before the
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives

March 29, 1995
Washington, D.C.

SUMMARY OF SPECIFIC ACTION REQUESTED

Appropriation of funds
for construction of
The Animas-La Plata Water Resource Development Project
in the states of Colorado and New Mexico

Mr. Chairman and members of the Committee:

My name is Leonard C. Burch. I am Chairman of the Southern Ute Indian Tribe. I am accompanied by my fellow Council member, Marvin Cook. We are here today because our Tribe has a "Contract with America." The Contract I refer to is the Colorado Ute Indian Water Rights Settlement Act of 1988.

The Settlement Act is the latest in a long line of contracts which the United States government has entered into with the Southern Ute Indian Tribe dating back to 1859. As you know, Mr. Chairman, under the terms of the Colorado Ute Indian Water Rights Settlement Act of 1988, the President of the United States and the Congress mandated that the Animas-La Plata Water Resource Development Project be constructed, to fulfill the trust responsibility of the United States to the Colorado Ute Indian Tribes and to settle our water claims in Southwestern Colorado.

Unfortunately, Mr. Chairman, I must report to you and the members of the Committee that very little progress is being made toward fulfillment of the terms of my Tribe's Contract with

America. At the time of its passage, the 1988 Colorado Ute Indian Water Rights Settlement Act was held up as a model for Indian tribes throughout the United States; a model which said: "Negotiate instead of litigate. Do not go on the warpath - sit down and smoke the peace pipe."

At the time of passage of the 1988 Settlement Act, the Colorado Ute Indian Tribes did not request that the Congress grant any special exceptions to the National Environmental Policy Act, the Endangered Species Act, or the Clean Water Act. Had the Colorado Ute Indian Tribes known then what they know now, I am certain the Tribes would have requested that Congress consider exceptions to those federal statutes.

What does the Tribe know now that it didn't know then? First: The Tribe knows that despite the 1988 Settlement Act and the Congressional mandate to build the Animas-La Plata Project, the U.S. Fish and Wildlife Service can reverse a 1979 non-jeopardy opinion under the Endangered Species Act, and issue a new jeopardy opinion which requires seven years of study and prevents the Tribe and other water users from receiving that which they bargained for - Phase I of the Animas-La Plata Project.

Second: The Tribe knows that the Bureau of Reclamation, which issued a final Environmental Impact Statement on the Animas-La Plata Project in 1980, can arbitrarily decide to re-do the Environmental Impact Statement. This arbitrary action resulted in litigation by national and local environmental groups whose sole objective is to delay construction of the Animas-La Plata Project and thereby drive up its cost.

Third: The Tribal Council knows that under the provisions of the Clean Water Act it is necessary for the Bureau of Reclamation to perform a 404B-1 analysis in order to retain an exemption previously allowed by Congress to would allow construction of the Animas-La Plata Project to proceed.

Fourth: The Tribe knows now the heavy hand which the Environmental Protection Agency has in the process. Recently, Ute Mountain Ute Chairman Judy Knight-Frank and I received a letter from the Regional Administrator of Region 8 of the EPA. We were more than somewhat dismayed to read parts of the letter in the newspaper prior to the time it was delivered to our Reservations. The EPA is insisting that the Bureau of Reclamation study alternatives to the Animas-La Plata Project, even though the Project has been studied for twenty-seven years. The EPA letter states "It appears to us that there is a misunderstanding on the part of the U.S.B.R. and the Tribes that the Settlement Act of 1988 somehow limited the alternatives analysis process."

There is certainly a misunderstanding, but it is on the part of the EPA. The Southern Ute Indian Tribe spent over ten years negotiating alternatives to the Animas-La Plata Project. In the 1970's, over thirty alternative projects were considered and rejected. The alternative which my people accepted and bargained for in the Colorado Ute Indian Water Rights Settlement Act, and which we assumed that the United States Congress accepted at the time of the passage of the Act, was construction of the Animas-La Plata Project. The EPA letter seeks to dictate that the Southern

Ute and Ute Mountain Ute Indian Tribes accept something different from the Animas-La Plata Project we negotiated for in good faith. We do not intend to accept any alternative which would give my Tribe less than that which we bargained for - wet water, municipal and industrial water as well as irrigation water and a major reservoir for the future use for Tribal members. In our view, any alternative to the Animas-La Plata Project would be a breach of our Contract with America.

Fifth: The Southern Ute Indian Tribe learned that reports of the Inspector General are not always factual. The Inspector General's Audit Report of July 1994, regarding the development status of the Dolores and Animas-La Plata Projects is inaccurate. For example, the Inspector General's report, at Page 14, states "We noted that under the Settlement Act, Colorado Ute Indian Tribes have a right to market their water supplies." This is contrary to Section 5(b) of the Act, which prohibits the Tribes from marketing water.

The Inspector General's report suggests that the Tribes convert their Indian water rights from irrigation use to M&I water supply functions. Why the Inspector General believes such a suggestion would be attractive to Indian Tribes is beyond belief. As this Committee knows, under the terms of the Leavitt Act, the Indians' share of irrigation construction costs are properly deferred, whereas 100% of the costs for municipal and industrial water supply must be repaid, plus interest.

And finally, the most insulting remark contained in the Inspector General's report suggests that the Bureau of Reclamation determine whether the Tribes "are interested in receiving compensation in lieu of constructing the irrigation distribution systems for agricultural development." In other words, give the Indian Tribes money instead of water. Both the Southern Utes and Ute Mountain Utes have been down that path before. In 1880, the United States Congress, without the consent of the Utes, took away all of the Ute Indian Tribes land base in Western Colorado, Eastern Utah, and Northwestern New Mexico. Seventy years later, the three Ute Tribes were awarded $32 million by the Indian Claims Commission. The Southern Ute's share of that award was $7 million. Forty-four years later, only a fraction of the land which was taken has been restored to Tribal ownership and the Tribe does not have the money - no land and no money. We do not want to be in a position fifty years from now of no water and no money. We bargained for wet water in perpetuity, not dollars. The Inspector General's suggestion is insulting to the Ute Indian people.

Today, the Southern Ute Indian Tribe, the Ute Mountain Ute Tribe, the water districts, municipalities, and the good citizens of Southwestern Colorado find themselves enmeshed in a bureaucratic swamp of white tape, which threatens to destroy my Tribe's Contract with America.

On behalf of our Tribe, we are here today, Mr. Chairman, to request that the members of your committee once again assist us in overcoming the obstacles we face by appropriating additional funds so that upon the Bureau of Reclamation's completion of the Supplemental Environmental Impact Statement construction of the Animas-La Plata Project can finally commence during fiscal

1996. We ask you to help so that our Contract with America becomes a reality and continues as a model for other Indian tribes.

Thank you.

Mr. McInnis. Mr. Chairman, I promise you I will keep it very, very brief. I know that we have an original 15. So, Jim, if you can do it——

Mr. Isgar. I think he ought to go next.

Mr. Myers. Who wants the ball?

Mr. Lile. Mr. Chairman, and Congressman Bevill. Thank you for the opportunity to speak to you today. My name is Daries C. Lile. I am director of the Colorado Water Conservation Board. We will be submitting written testimony on behalf of the State of Colorado and Governor Roy Romer and James Lockhead, Director of Natural Resources and the Colorado Water Conservation Board.

I would just like to say that Colorado is in full support of this project, the settlement agreement. I would like to clear up a couple of misconceptions that I heard about a week ago in this room, first with regard to dollars and the State's ability to have the funds available. We have escrowed the money, and it is standing by for our proportion of the cost share, approximately $60 million. That money has been escrowed. We have paid a portion of it to build pipeline, as Chairman Judy Knight mentioned. We also have money standing by for cost share as we go. So I want to clean up that.

Another issue I think is important is you hear about alternatives. And as a matter of geography and hydrology, water supply and where the tribal lands are, the only river system that has available water is the Animas River, and the only feasible site is Richard Basin Reservoir site. We have looked at alternatives for years, and I think it is important to know that.

I would like to conclude my testimony now and yield my time to whoever else would like to speak. Go ahead, John.

[The statement of Mr. Lile follows:]

STATE OF COLORADO

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Roy Romer
Governor

James S. Lochhead
Executive Director, DNR

Daries C. Lile, P.E.
Director, CWCB

March 28, 1995

John Meyers, Chairman
House Committee on Appropriations
Energy and Water Development Subcommittee
2362 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Meyers:

Enclosed is the testimony of the State of Colorado in support of FY 1996 appropriations for the U.S. Bureau of Reclamation and Corps of Engineers.

This testimony is submitted on behalf of Governor Roy Romer, James S. Lochhead, Executive Director of the Colorado Department of Natural Resources and the Colorado Water Conservation Board--the state agency charged with the protection and development of Colorado's water resources. On behalf of the State of Colorado and the Department of Natural Resources, thank you for the opportunity to present this testimony.

Very truly yours,

Daries C. Lile
Director, CWCB

DRS/DCL/vt

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STATEMENT OF THE STATE OF COLORADO
BEFORE THE
HOUSE COMMITTEE ON APPROPRIATIONS
ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES
FOR THE BUREAU OF RECLAMATION AND CORPS OF ENGINEER PROJECTS IN COLORADO FOR FY 1996 APPROPRIATIONS

Washington, D.C.
March 28, 1995

Mr. Chairman and Members of the Committee:

I am Daries C. Lile, Director of the Colorado Water Conservation Board. I appreciate the opportunity to testify before you today on behalf of Governor Roy Romer, James S. Lochhead, Executive Director of the Colorado Department of Natural Resources, and the Colorado Water Conservation Board--the state agency charged with the protection and development of Colorado's water resources.

SUMMARY OF REQUESTS

Colorado supports the Administration's budget requests for FY 96 for funding projects and activities of the Bureau of Reclamation and the Army Corps of Engineers in Colorado with emphasis on the following projects and activities:

U.S. Bureau of Reclamation

- Animas-La Plata Project - $14.0 million for construction. The Administration's budget recommends $4.879 million for initial project construction and $250,000 for construction of Recreation and Fish and Wildlife facilities. In order to satisfy the time schedule in the Indian Settlement Agreement, the State of Colorado requests that the budget be increased by $8.871 million.
- Upper Colorado River Basin Endangered Fish Recovery Program - $6.373 million for construction activities and $100,000 for General Investigations.
- Dolores Project - $3.47 million for continued construction.
- Eastern Colorado Projects (Fryingpan-Arkansas, Colorado-Big Thompson and Arkansas River Water Quality Improvement Program) - $700,000 for Arkansas River Water Quality Improvement Program construction and $11.594 million for operation and maintenance of the Eastern Colorado Projects.
- San Luis Valley Project, Closed Basin Division - $3.195 million for continued construction, operation and maintenance.
- Colorado River Basin Salinity Control Program - The State of Colorado supports the Salinity Control Forum's request of $18.6 million for construction and general investigations under Title II of the program. This is an increase from what was proposed in the Administration's budget.
- Southwest Colorado Rural Water Supply Study - $75,000 to initiate the investigation.
- Continued funding for operation and maintenance of existing Reclamation projects.

- Continued funding for the Bureau's ongoing General Investigation programs.

U.S. Army Corps of Engineers

- Alamosa Flood Control - $2.42 million for construction.
- Continued funding for operation and maintenance of Corps projects.

The State of Colorado also concurs with the testimonies presented to this Committee by Wayne Cook, Executive Director of the Upper Colorado River Commission on behalf of the Upper Colorado River Commission and the Upper Colorado River Basin States of Colorado, New Mexico, Utah, and Wyoming, and by Jack A. Barnett, Executive Director of the Colorado River Basin Salinity Control Forum. Their testimonies detail the recommended budget requests for water project construction and planning, endangered fish recovery efforts, salinity control projects and other water related programs in the Colorado River Basin. The State of Colorado also supports the testimony offered by the Arkansas Basin Development Association on March 23, 1995.

RECOMMENDED FUNDING FOR COLORADO PROJECTS

Specific budget recommendations for projects and activities in Colorado include the following:

U.S. BUREAU OF RECLAMATION

Colorado strongly supports the Administration's budget recommendations for the U.S. Bureau of Reclamation's continued operation and maintenance of a number of projects in Colorado. The State also wishes to voice its support for continuing the General Investigation Programs outlined in the Administration's budget. In particular, we want to call the Committee's attention to the following projects which are of major importance to Colorado and our recommendations to you for increased funding in two particular areas--the Animas-La Plata Project and the Colorado River Salinity Control Program.

Animas-La Plata Project

The Administration's budget recommends $4.879 million to initiate project construction. Colorado supports a budget recommendation of at least this amount, consistent with adequate completion of all necessary environmental documentation. The State of Colorado further requests a budget increase of $8.871 million, bringing the total budget recommendation to $14.0 million in order for construction to remain on a schedule that will satisfy the Colorado Ute Indian Water Rights Settlement Act.

The Animas-La Plata Project in southwest Colorado was authorized in the Colorado River Basin Project Act (1968) and will provide important agricultural and municipal water supplies to the region. It is also the keystone of the Southern Ute and Ute Mountain Ute Tribe's reserved water rights settlement agreement. In 1988, Congress recognized the settlement among the Ute Tribes and various interests in southwest Colorado and northwest New Mexico in P.L. 100-585, the Colorado Ute Indian Water Rights Settlement Act. The settlement agreement identified the proposed Animas Project as the primary means for resolving competing water related claims of the disputing parties. The unique cooperation which occurred between the citizens of Colorado, the State of New Mexico and the Ute Tribes during development of the settlement agreement underscores the advantages of resolving Native American rights claims outside the courtroom.

The Animas-La Plata Project is divided into two phases. The total project cost is presently estimated to be $710,238,000 of which $24,128,000 is reimbursable interest during construction. The actual cost of Phase I construction is $526,060,000. Phase II construction will all be accomplished entirely with non-federal funding. Furthermore, Phase I is jointly funded by the states, federal government and local water users. The non-federal cost share for Phase I totals $68,226,500. Combining the Phase I cost share with Phase II construction represents a total project non-federal cost share of approximately 38%. The Colorado General Assembly has already appropriated the States cost share; $30.0 million was escrowed and now as a value of approximately $42.4 million, the Towaoc pipeline was constructed at a cost of approximately $6.8 million, $5.0 million in cash was provided to the tribal development fund, $5.6 million in cash is available for project construction. Cost share contracts between the Bureau of Reclamation and water users in New Mexico and Colorado make up the balance. These cost share contract also specify a twelve-year construction schedule, which, if not met, could undermine the Native American water rights settlement agreement.

The Animas-La Plata project dam site is the only feasible dam site at which waters from the Animas River, the largest tributary of the San Juan, can be captured and distributed to both Indian lands and private lands which are interspersed in this portion of southwestern Colorado. Numerous alternatives have been evaluated since 1968 and no better alternative has been identified. Therefore, Colorado strongly urges the Committee to favorably consider a total appropriation of $14.0 million for construction and to write-in this amount to the budget in order to keep this vital project on schedule.

Upper Colorado River Endangered Fish Recovery Program

The Administration's budget recommends $6.373 million in FY 1996 for activities associated with the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin. This amount is included in the Administration's FY 1996 budget for Reclamation under, "Construction-Endangered Species Recovery Implementation Program-Upper Colorado Region-Various Studies." The Administration's General Investigations budget also includes $50,000 for continuing the Grand Valley Project Water Conservation Study and $50,000 to complete the Yampa River Water Supply Study. Colorado strongly supports these budget requests.

The Recovery Program is a cooperative effort between the U.S. Fish and Wildlife Service, the Bureau of Reclamation, the States of Colorado, Wyoming and Utah, the Western Area Power Administration, water users and conservationist to recover the four endangered fish species of the Upper Colorado River Basin. This program involves cost sharing from all participants and is one of the few successful efforts among diverse entities to recover endangered species under the Endangered Species Act while allowing water resource development to continue.

This budget request is in addition to funding requests made by the U.S. Fish and Wildlife Service. The Service has requested funds to support the Recovery Program ($623,000), earmarked $200,000 of Section 6 funds for "Grants to States," and requested $284,000 for operation and maintenance of Rare and Endangered Fish facilities (Ouray). We strongly recommend that the

$477,900 which remains from a $1,000,000 appropriation made in 1988 again be carried forward to acquire water for the endangered fish; and we anticipate expenditures for water acquisition activities in FY 96.

Dolores Project

The Administration's budget recommends $3.470 million for continued construction of Section 5 features of this project. All Section 8 features have been completed. Colorado supports the budget recommendation.

The recommended Section 5 funding for the Dolores Project, located in southwest Colorado, will allow construction to be completed on McPhee Dam and Power Plant ($40,000), Dove Creek Distribution System ($200,000), South Canal Distribution System ($26,000), Cortez-Towaoc Distribution System ($1,438,000), Towaoc Area Drains ($185,000), and other project facilities ($700,000).

Eastern Colorado Projects

The Administration's budget recommends $11.594 million for operation and maintenance of these projects and an additional $700,000 for continued construction of the first corrective action demonstration project and initiation of fish and wildlife restoration activities. Colorado strongly supports this budget request as these projects are absolutely vital to Colorado's economic well being. These projects include the Colorado-Big Thompson Project, the Fryingpan-Arkansas Project and the Arkansas River Water Quality Improvement Program. Combined the Colorado-Big Thompson and Fryingpan-Arkansas projects divert approximately 300,000 acre feet annually from the western slope of Colorado to farms and communities along Colorado's front range.

The Arkansas River Water Quality Improvement Program reduces water quality problems, which are the result of mining during the late 1800's, that have adversely impacted fisheries, wildlife and water supplies. This program improves water quality in the Arkansas River between Leadville and Pueblo Reservoir. The water quality program is a cooperative effort with the Environmental Protection Agency, several state agencies and the Southeastern Colorado Water Conservancy District.

San Luis Valley Project - Closed Basin Division

The President's budget recommends $3.195 million to operate and maintain the Closed Basin Project and related mitigation. Colorado supports this budget request.

The Closed Basin Project has already demonstrated its worth to Colorado water users in the San Luis Valley and to water users in New Mexico and Texas by assuring that the Rio Grande Compact deliveries are met.

Colorado River Basin Salinity Control Program

The President's budget recommends $13.83 million for Title II construction and General Investigation activities and $2.3 million for Title I construction. The President's budget also includes $4.015 million for operation and maintenance. Colorado supports at least this level of funding. However, Colorado believes the Colorado River Basin Salinity Control Forum's budget recommendation is more appropriate and strongly urges the Committee to write-in the Salinity Control Forum's recommendation and maintain the operation and maintenance amounts identified in the President's budget.

The Forum's recommendation, which is limited to Title II funding, is $18.6 million for Title II construction and General Investigations: this includes construction funding for the Grand Valley Unit ($6,799,000), Lower Gunnison Unit ($4,001,000) and Paradox Unit ($300,000); $7.0 million for construction under "Title II, New Format"; and $500,000 for General Investigations. The recommendations for operation and maintenance total an additional $4.015 million as outlined in the President's budget.

The Colorado River Salinity Control Program is extremely important to the Colorado River Basin States. Since 1974, the Colorado River Basin States and the Forum have worked diligently to develop and implement a cost effective means for controlling salinity in the Colorado River as required by the Clean Water Act, Colorado River Basin Salinity Control Act and other federal laws.

U.S. ARMY CORPS OF ENGINEERS

The President's budget recommends $2.42 million for construction on the Alamosa Flood Control Project. Colorado supports this budget request.

This project will provide a 100-year flood protection levee system along the Rio Grande through the community of Alamosa. In addition to providing needed flood control, this project will also help Colorado meet delivery requirements to New Mexico and Texas as mandated by interstate compact. The Colorado Water Conservation Board has recommended that the General Assembly approve matching funds for this project.

Operation and Maintenance

Colorado strongly supports the budget recommendations for normal operation and maintenance at the following facilities:

John Martin Reservoir	$1,475,000
Trinidad Lake	$ 609,000
Bear Creek Lake	$ 429,000
Chatfield Reservoir	$1,000,000
Cherry Creek Reservoir	$ 978,000

The waters impounded by these five facilities, in addition to providing flood control, are heavily used for recreation and the state has cooperative agreements with the U.S. Army Corps of Engineers to provide recreational facilities at these projects.

Continuing Authorities

The U.S. Army Corps of Engineers, through its District and Field Offices, continue to provide Colorado communities with support on emergency streambank protection, small flood control projects, floodplain identification, water quality programs, 404 permit requirements, and maintenance oversight on several stream channelization projects. We urge continued and full funding of these activities.

We thank you very much for the opportunity to testify before you today. The State of Colorado sincerely appreciates the consideration and support the Committee has extended to our great State.

Mr. PORTER. My name is John Porter. I am here today on behalf of Fred Kroeger, and he wishes to say this is probably the first time in 30 or 40 years he hasn't been here. It is going to be tough to fill his shoes. So I am going to just paraphrase his testimony.

I want to call to your attention the fact that there have been many alternatives studied over the years for the Animas–La Plata. In 1976 through 1978, I think there were 38 different sites and alternatives to that project studied. I see no reason to go back through that process. I am not speaking for the Indian tribes, but in terms of being their neighbors and working with them, certainly the value of that Indian water rights settlement isn't figured into a cost benefit ratio. But if this settlement fell apart, there would be many, many costs to southwest Colorado.

The Indians, when they chose to negotiate rather than litigate, saved the Federal Government, the States, the local communities, many, many dollars. And if we went back through that process, I shudder to think what the result would be. The idea that they would rather receive money than water, as I talk to my Indian neighbors, there is—they always say we want wet water. We don't want to go down that track of money instead of water.

And lastly, they talk about water from other projects to replace—to serve the Indians. There is no project in southwest Colorado that has water just sitting there to satisfy Indian water rights. If that were the case, you would be taking water away from some other user. And you can imagine what kind of economic havoc that would cause.

One other comment I would add to what Chuck Lile said. Colorado does have cash in hand, in escrow, for their share of the cost share agreement. I am a member of the Colorado Water and Power Authority, and under our—under our entity, that cash as of March 25th, 1995, is completely funded. It is there.

Thank you. Appreciate the support you have given southwest Colorado all these years.

[The statement of Mr. Porter follows:]

STATEMENT
of

FREDERICK V. KROEGER, PRESIDENT
BOARD OF DIRECTORS, SOUTHWESTERN WATER CONSERVATION DISTRICT

before the
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives

March 29, 1995
Washington, D.C.

SUMMARY OF SPECIFIC ACTION REQUESTED

Appropriation of funds
for construction of
the Animas-La Plata Water Resource Development Project
in the states of Colorado and New Mexico

Mr. Chairman and members of the Committee:

I am Fred V. Kroeger, President of the Board of Directors of the Southwestern Water Conservation District of Colorado. I have been a member of the Board of Directors for over 40 years. I was honored to serve on the Colorado Water Conservation Board, the water policy making board for the State of Colorado, for 21 years, and I presently serve on the City of Durango Water Commission.

During my long association with water matters in the State of Colorado, I have had the privilege to participate in the development of numerous projects which have been constructed under the provisions of the 1956 Colorado River Storage Project Act. I have seen the benefits which have accrued to our part of the United States with the construction of Glenn Canyon Dam at Lake Powell, Navajo Dam, the Wayne N. Aspinall Unit, and, in our immediate area, the Florida and Dolores Water Resource Development Projects.

I therefore support the Bureau of Reclamation's proposed Southwest Colorado River Water Supply Study, an appropriation of $14 million for the Animas-La Plata Project and appropriation of $3.47 million for the Dolores Project.

Critics of water resource development projects constantly focus upon their costs and ignore their benefits. For the Animas-La Plata Project, in addition to the traditional benefits such as municipal, industrial, irrigation, and recreational water supplies which are estimated to exceed $74.8 million per year, the overriding benefit of the Animas-La Plata Project is the settlement of water rights claims of the two Ute Indian Tribes in Colorado. Under the Colorado Ute Water Rights Final Settlement Agreement of December 10, 1986, and under the federal law implementing that agreement signed by President Ronald Reagan on November 3, 1988, construction of the Animas-La Plata Project is the keystone to the settlement of Tribal water claims. Typically, however, critics of the Animas-La Plata Project assign no value to the settlement because it complicates their standard arguments in opposing water conservation through water storage.

Based on federal promises included in the Settlement Agreement and the Settlement Act, and Court decrees ratifying the Agreement and the Act, both Indian tribes agreed to forego their senior water rights claims on many streams that cross or abut their reservations in exchange for construction of the Animas-La Plata Project by the United States. If the Tribes' *Winters* reserved water rights claims were to be litigated and the water presently used by non-Indians in Southwestern Colorado were taken by the Tribes because of failure to complete the Animas-La Plata on schedule, the non-Indian economy in our area will face devastating disruption. Further failure to build the Animas-La Plata Project on schedule could materially jeopardize vital benefits to the Tribes. The Colorado Ute Water Rights Settlement Act has brought an era of prosperity to the tribes. Both tribes have wisely utilized their tribal development funds and maintained cooperative and cordial relations with the non-Indian citizens of Southwestern Colorado and Northwestern New Mexico.

Recently, the Sierra Club Legal Defense Fund and other Project detractors have suggested the need to study alternatives to the Animas-La Plata Project. The objective of the detractors of the Animas-La Plata Project is further delay. From 1968 until 1978, over thirty alternatives to the Project as originally authorized for construction were studied by the citizens of Southwestern Colorado, including water districts, elected officials, Indian tribes and, yes, even environmental groups. It was only after exhaustive study that the Bureau of Reclamation proceeded to write the Definite Plan Report, which contains the Project features eventually agreed to by the Colorado Ute Indian Tribes, the State of Colorado, the United States Government, and water users in Southwestern Colorado and Northwestern New Mexico. The suggestion for more study flies in the face of the endorsement of the Animas-La Plata Project by citizens of Southwestern Colorado and Northwestern New Mexico in two public elections.

The Sierra Club Legal Defense Fund and other Project detractors have brazenly suggested simply giving the Indians money instead of water as a viable alternative to the construction of the Project. This approach, which is startlingly reminiscent of the Manhattan-for-beads exchange, is simply not acceptable to today's tribal leaders. Tribal leaders made it abundantly clear throughout the negotiations for the settlement of their water rights claims that they were interested in wet water, not money.

Opponents of the Animas-La Plata Project have also suggested water marketing, an "Indian only" project, or making water available to the Tribes from other water projects. Water marketing is just another way of saying, "Let's give the Indians money instead of water." Further, an "Indian only" project was studied extensively during the 1970's by the Bureau of Reclamation. The Southern Ute Indian Tribal council rejected alternatives which would have provided water solely to the Tribes.

The suggestion that water be made available to the Tribes from other water resource development projects near their reservations fails to provide the Indian tribes with a promised new supply of municipal and industrial water, as well as irrigation water, and can be achieved only by taking water from other users. The Tribes rejected such a contentious proposal in agreeing to negotiate, rather than litigate, to quantify their reserved water rights.

Suggesting the need to study alternatives is a desperate attempt to have the federal government avoid fulfilling its promise to the two Colorado Ute Indian Tribes in the 1988 legislation. It is paternalistic for these environmental groups to say that the Indian tribal councils do not know what is best for their people. The two Colorado Ute Indian tribes and the water users have faith that the Congress will listen to the Tribes and fulfill the federal government's promises by appropriating funds to allow the construction of the Animas-La Plata Project to begin in fiscal year 1996.

Thank you.

Mr. McINNIS. Mr. Chairman, I know that you have been very generous. We still have a couple minutes? All right. I will go with Larry, why don't you go quickly, then we will conclude with Jim.

Mr. DEREMO. I am Larry Deremo, President of the Dolores Water Conservancy District. I am here to support the President's request for funding for the Dolores project. However, I would like to make another statement in regard to the Animas–La Plata and the Ute's water right settlement.

The Dolores project is part of that, and we are supplying water to the Ute Mountain Utes. So if the other dam should go by the wayside, we are highly involved. What do we do at that point, when we are part of this settlement? And the two projects are sister projects.

In the Dolores project, it has been a success, it has proven to be a success. And the way we gauge that is the price of that land that we have with irrigation water on it is worth a lot more money than land that adjoins it with no water. We do have some problems yet with the Dolores project. Even though the President has recommended $3.47 million, that will really not complete all of our problems. Our district is going to have to absorb a lot of the cost.

Deficiencies within the project, we have been working with a coalition of several organizations in our area, trying to deal with the Bureau of Reclamation. They have tied all the issues in one issue. And we don't believe that is fair. We think that those issues ought to have merit of their own, each one should be resolved one at a time. And we ask your help and guidance in that direction.

Mr. MYERS. Thank you.

Mr. DEREMO. We would like to thank you again for the Dolores project.

[The statement of Mr. Deremo follows:]

STATEMENT OF LARRY DEREMO,
PRESIDENT, BOARD OF DIRECTORS,
DOLORES WATER CONSERVANCY DISTRICT,
MONTEZUMA AND DOLORES COUNTIES, COLORADO

BEFORE THE SUBCOMMITTEE ON ENERGY & WATER DEVELOPMENT
OF THE COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

March 29, 1995

SUMMARY OF SPECIFIC ACTION REQUESTED:

APPROPRIATION OF $3.47 MILLION
RECOMMENDED BY ADMINISTRATION FOR
CONSTRUCTION OF THE DOLORES WATER RESOURCE
DEVELOPMENT PROJECT IN THE STATE OF COLORADO
and
CONSIDER OPTIONS FOR COMPLETION OF DOLORES PROJECT ISSUES

Request

Mr. Chairman and Members of the Committee, my name is Larry Deremo. I am President of the Board of Directors of the Dolores Water Conservancy District ("District") and a Dolores Project irrigator. I offer this testimony in support of the President's request for appropriations for ongoing construction of the Dolores Water Resource Development Project in Southwestern Colorado. The President has requested $3,470,000 for Section 5 construction. There are no Section 8 funds requested in FY 96.

The requested funds will be used to complete the following facilities: Towaoc Canal / Ute Indian distribution system; Dove Creek Distribution System; Anasazi Heritage Center; Ongoing O&M Agreements; and Other Project Costs. Final completion of the Dolores Project is presently scheduled in 1999. Items embodied in future budgets are Operation and Maintenance (O&M) Agreements, with the Ute Mountain Ute Indian Tribe, the Montezuma Valley Irrigation Company and the Dolores Water Conservancy District. Thanks to this

Committee's dedication to the Dolores Project and its beneficiaries, the end of construction is in sight! **Believe me when I say we are grateful!**

Additional need

While the end of construction is in sight, the view to the end is currently unclear. Our District and a coalition of other entities, agencies and organizations has worked hard with the Bureau of Reclamation at the local and regional level to address issues which remain outstanding. However, we have been stymied by Bureau insistence that all issues are linked. We seek the Committee's continued involvement in Dolores Project issues so that each problem can be addressed on its own. Your assistance and guidance will be crucial to the prompt and effective resolution of remaining Project questions, and we ask for that ongoing participation at this time.

Dolores Project Successes

The new Dolores Project and the dependable water supply it affords the economy of Southwest Colorado continue to be a success story. I think the real indicator of a project's success is measured in the market place. Likewise, the market place is an indicator of the relative confidence that local lending institutions assign the project. The District, as operator of the project, has first hand knowledge of how the project is viewed by the local community. We are aware on a day by day basis what the opinions of components of the local community are; whether it be the direct beneficiaries (agricultural, municipal or recreational), the local economic leaders, the real estate community or the general public. We are very much in tune to the indicators that drive the market and how the project has impacted that market. Since the project is new, it took several years of operation for confidence in the reliability of the water supply and the state of the art facilities to deliver water on a dependable, timely and cost efficient basis to be established. As measured by the market place; daily questions to District staff about the availability of project water at various locations, the obvious disappointment and loss of interest in a particular property if project water is unavailable, and finally, the bottom line, which is the price a willing buyer will pay for property with project water as compared to property without project water demonstrates that confidence has been established. **The Dolores Project is a resounding success.**

Summary

On behalf of the District's Board of Directors, it is with deep and sincere gratitude for project facilities presently finished and eager anticipation of final completion, that I ask that you support the President's request of $3.470 million for FY 1996. I also urge your continued assistance and guidance for effective resolution of remaining Project questions.

Mr. McINNIS. One final speaker, Mr. Chairman. We will keep it brief.

Mr. ISGAR. Mr. Chairman and Congressman Bevill, we would like to thank you for your support in the past and the opportunity to be here today to address you. I am Jim Isgar, member of the Animas–La Plata Water Conservancy District.

You may recall my dad who has been back here on numerous occasions for the last at least 25 years, probably. I am a farmer in the project area. All the ground we own is within the geographical boundaries of the Southern Ute Reservation. As Leonard referred to, our grounds are checkerboarded because of the nature of the reservation and the fee land within that.

I signed my repayment contract for the water in 1987, as did most of my neighbors. At that time, we thought we were pretty close to receiving—at least getting started with the construction. Unfortunately, things haven't progressed as well as we anticipated. My dad actually moved out into that area in the late 1940s, thinking that we would have water in the near future. Anyway, that is what we are working on, to fulfill some of those commitments.

I would like to address a couple of misconceptions. One, it irritates me somewhat when people come back here and tell you that we cannot afford to pay for the water. If we as farmers didn't feel we could afford to pay for the water, we wouldn't sign the repayment contracts. They said the farmers in the Dolores project couldn't pay for the water, and as Larry pointed out, they signed up for the water, the marketplace has shown that it must be feasible because the land that receives the water does bring more than land that doesn't.

Another issue is the economic unfeasibility. I would like to take exception with the Inspector General of the Department of Interior, his report that showed that the project is economic unfeasible. To reach that conclusion, they had to not consider any of the indirect benefits, of which a main one of course is the Colorado Ute Indian Water Right Settlement Act. You cannot—you cannot ignore that type of a settlement and say that that—there is no benefit from that.

The alternative to the Ute Indian Water Right Settlement Act would have been depriving several hundred farmers and communities of their water. I don't know how a person could ignore those kind of benefits. Just because the project does only serve so many acres, but it does preserve the water for all these other uses. And that is a benefit.

And if you take it into account, you don't end up with $7,000 per acre, as Mr. Black says. And even using his figures, his math is not too good, you don't come up with I think .0039. But you do need to take into account the benefits that we are maintaining the water for the people who have it now.

[The statement of Mr. Isgar follows:]

STATEMENT
of

JIM ISGAR

Member of the Board of Directors
Animas-La Plata Water Conservancy District

before the
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives

March 29, 1995
Washington, D.C.

SUMMARY OF SPECIFIC ACTION REQUESTED

Appropriation of funds
for construction of
The Animas-La Plata Water Resource Development Project
in the states of Colorado and New Mexico

Mr. Chairman and members of the Committee:

I am Jim Isgar, a member of the Board of Directors of the Animas-La Plata Water Conservancy District. I am a farmer, as is my father. The construction of the Animas-La Plata Project will ensure that my children will also have the opportunity to remain in agriculture. My father appeared before this Committee 25 years ago in support of the Animas-La Plata Project. I am proud to follow in his footsteps and proud of what we have accomplished, despite the many obstacles, to maintain the viability of Animas-La Plata Project. The durability of the Animas-La Plata Project is a testament to the need for a critical water supply for the people in our area of the country.

I am here today to address the needs of the farmers. In July of 1994, the Inspector General of the United States Department of the Interior issued an audit report concerning the Dolores and Animas-La Plata Projects. I take issue with the unsupported conclusions reached by the Inspector General.

First, the Inspector General's conclusion that the Projects are not now financially feasible is a matter of smoke and mirrors; the result of changes in the Bureau of Reclamation's criteria for computing both project benefits and the local farmers' ability to afford the cost of irrigated agriculture. Under Reclamation's prior criteria, the Projects are definitely economically justified. Changing the method for computing benefits changes the rules in the middle of the game. Further, Reclamation's calculation of the farmers' ability to afford the cost of irrigated agriculture totally ignores the success of the Dolores Project, the sister project to the Animas-La Plata Project, which I believe more correctly assesses the farmers' situation than the Inspector General's report.

Dolores Project production figures tell the true story about the farmers' ability to pay for water from a reclamation project in Southwestern Colorado. According to the 1994 Crop Census Summary of the Dolores Project, the total value of crops produced was over $6 million. These valuations are based on conservative estimates, including, a price for hay of $70 per ton. This is the price utilized by the Farmer's Home Administration in determining whether to grant loans to farmers, when the actual price for hay in our area last year, in the field, was $110 per ton.

The Dolores Project yields per acre dramatize the value of irrigated agriculture. The 1994 yield for hay on irrigated lands was 4.15 tons of hay per acre, compared to 1/2 ton of hay for dryland production in the same area. Irrigated pinto bean production was 17.2 sacks per acre, versus 1.5 sacks for dryland production. In small grains, the yields were 26.41 sacks per acre, as opposed to 6 sacks for dryland production. Because of these values, the Dolores Water Conservancy District found itself in the enviable position of having over seventy-five farmers apply to receive an allocation of four times more Project irrigation water than the District had available to reallocate. Despite the claims of national and local environmental organizations and, despite the analysis of the Inspector General, the Dolores Project is an overwhelming success and testifies to the ability of farmers to pay for Project irrigation water.

It is important to note that while the Bureau of Reclamation willingly agreed to remove indirect irrigation benefits from the cost allocation and repayment computations on the Animas-La Plata Project, Reclamation did not remove these indirect benefits when considering the Central Arizona Project. Reclamation took this action based on the Central Arizona Project's authorization with indirect benefits and the negotiation of that Project's repayment contract assuming the use of Reclamation's original cost allocation methods. Both the Animas-La Plata and the Dolores Project were likewise authorized with indirect benefits. As a lay person, I cannot understand how the Inspector General could, with a straight face, say that indirect benefits should not be included in Animas-La Plata Project cost allocations and refuse to assign any benefit to the 1988 Colorado Ute Indian Water Rights Settlement Act.

As members of this Committee know, the settlement of the Colorado Ute Tribe's water claims in Southwestern Colorado is a huge benefit and an extraordinary achievement for the people in our area, both in Colorado and Northwestern New Mexico. This immense value must not be ignored. Fortunately, the Colorado Ute Indian Tribes and the Southwestern Water Conservation District commissioned their own Economic Impact Study of the Animas-La Plata Project. This analysis shows not only that the Project is economically feasible but also that the total income benefits to the region from the Animas-La Plata would be $74.8 million per year, with a direct benefit cost ratio of 1.66 and a total benefit cost ratio of 2.44.

We, therefore, trust that this Committee will see through the smoke and mirrors economics of the opponents of the Animas-La Plata Project. We ask your cooperation in appropriating $14 million for this critically needed, highly beneficial, and well-supported Project. My children, who will the be able to maintain our family's agricultural heritage, will be here to thank you.

Thank you.

Mr. MYERS. Thank you. Mr. Bevill.

Mr. BEVILL. Thank you, Mr. Chairman. I will make this brief. But I just want to say that as you know, each of you know, this panel has unanimously supported you all the way through. And as far as I know, there is no changes.

And we, Mr. Myers, Chairman Myers and I have been there many times. We are very familiar with this project, and of all the thousands of projects that we have dealt with in the United States, I don't know a single one that is more committed than this project, the Federal Government is committed and the Federal Government ought to live up to its commitment.

The Indians made a big sacrifice in entering into this agreement. They gave up very valuable water rights in the agreement. And the negotiations went on for a hundred years and I don't know of another one, agreement in the country, that took a hundred years to get everybody together, the Federal, the State, the local, the tribes, the two big tribes. And so I am hoping that we can fund this project, move it as fast as possible.

You know, so far it hasn't been the money, it hasn't been this panel. We have been very supportive and it is still not—there is nothing we are doing that is delaying it. We are very enthusiastic about getting it built, and we are ready to go on it.

Thank you, Mr. Chairman.

Mr. MYERS. Thank you, Tom. Thank you, Scott.

I reiterate once again, almost a hundred years ago my mother lived on a reservation in southern Colorado. I never knew which one. Her mother had tuberculosis and back in those days, the cure, the only thing, they sent them out to a dry climate. And my mother as a child went with her mother, lived there for several years, and I never knew where. Because our Indian heritage, very poor family, but for some reason because my great grandmother's name was Red Heifer. And she lived on a reservation, never knew which one. I suppose it was one of your reservations in southern Colorado.

So my mother always told me about the experience living on the reservation a hundred years ago—95 years ago, anyway. So again, thank you, Scott. Appreciate your testimonies, once again.

Mr. MCINNIS. Thank you, Mr. Chairman. I appreciate it.

Thank you, Mr. Bevill. Appreciate your courtesy.

[The information follows:]

LA PLATA COUNTY
FRANK "JOSH" JOSWICK • SHIRLEY BATY • FRED W KLATT, III • COMMISSIONERS
303 382.6219 • FAX 303 382 6299

March 23, 1995

Subcommittee on Energy & Water Development
Committee on Appropriations
United States House of Representatives
Washington, D.C.

Dear Chair:

Domestic water in parts of La Plata County is truly a concern. A number of factors, including oil and gas production and many natural occurring contaminates, cause the quality of domestic water wells to be questionable. The long term reliability is also dubious as numerous subsurface faults and fractures distort normally occurring aquifers. As growth and development continues in La Plata County, these problematic factors are amplified.

It is for these reasons the La Plata County is supportive of the current efforts to study domestic water sources in the Southeast parts of our county. In our view it is prudent to examine alternatives.

Sincerely,

LA PLATA COUNTY, COLORADO
BOARD OF COUNTY COMMISSIONERS

Shirley Baty
Shirley Baty, Chair

1060 E. 2ND AVE. • DURANGO, CO 81301 • TDD 303 382.6200

STATEMENT
of

JEFF MORRISSEY

Member of the Board of Directors
Animas-La Plata Water Conservancy District

before the
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives

March 29, 1995
Washington, D.C.

SUMMARY OF SPECIFIC ACTION REQUESTED

APPROPRIATION OF FUNDS FOR CONSTRUCTION OF THE ANIMAS-LA PLATA WATER RESOURCE DEVELOPMENT PROJECT IN THE STATES OF COLORADO AND NEW MEXICO

STATEMENT
of

JEFF MORRISSEY

Member of the Board of Directors
Animas-La Plata Water Conservancy District

before the
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives

March 29, 1995
Washington, D.C.

SUMMARY OF SPECIFIC ACTION REQUESTED

Appropriation of funds for construction of
the Animas-La Plata Water Resource Development Project
in the states of Colorado and New Mexico

Mr. Chairman and members of the Committee:

My name is Jeff Morrissey. I am a member of the Board of Directors of the Animas-La Plata Water Conservancy District and have had the pleasure in the past to serve on the Durango City Council and as Mayor of the City of Durango. If water resource development were a poker game, it would not be an exaggeration to say that the City of Durango has bet its chips on the Animas-La Plata Project. Since even before the 1968 authorization of the Project, the City has looked to the Animas-La Plata Project as the solution to the City's water supply problems.

Today, despite interminable delays, which have driven up the cost of the Project through no fault of its proponents, the Animas-La Plata Project remains the best single alternative for the City of Durango and its citizens. This was best stated in a Friday, September 23, 1994, Durango Herald, headline: "City's Study Concludes A-LP Water is Best Buy." The City's study was conducted by a Denver-based engineering firm at a cost of $76,500.

Delays in the construction of the Animas-La Plata Project were first caused by the necessity for cost sharing, as mandated by the Congress and then by negotiations for settlement of the legitimate water claims of the two Colorado Ute Indian Tribes. Additional delays resulted from belated action by the U.S. Fish and Wildlife Service and the Bureau of Reclamation. In the early

1960's, the Service poisoned the San Juan River to get rid of the Colorado Squawfish and, in 1979, wisely determined that the Animas-La Plata Project would not endanger these fish. Eleven years later, the Service changed its opinion and decided that the Project would threaten the continued existence of the fish. More recently, the Bureau of Reclamation, which originally completed an Environmental Impact Statement on the Animas-La Plata Project in 1980, decided after the groundbreaking for the Project that a Supplemental Environmental Impact Statement was necessary. This, in turn, brought about lawsuits by national and local environmental groups.

Despite all of these roadblocks, the Animas-La Plata Project represents the best opportunity for the citizens of Southwestern Colorado and Northwestern New Mexico to develop and utilize needed water resources.

Opponents of the Animas-La Plata Project are now calling upon the Congress to provide for studies of "viable alternatives." Anyone familiar with the history of the Animas-La Plata Project, knows this request is ludicrous. The Project has been studied almost to the point of its demise.

In addition, opponents of the Animas-La Plata Project are playing the game of "We know better than the Southern Utes and Ute Mountain Utes what's good for them and it's not the Animas-La Plata Project." Growing up in the Durango area and working with the Southern Ute Indian Tribe, it has been my experience that the Southern Ute Indian Tribal Council well represents the interests of the Tribe. The attempts by various local environmental groups and the National Sierra Club Legal Defense Fund to speak on behalf of the Indians is insulting, not only to Tribal members, but to those of us who respect and appreciate their ability to speak for themselves.

Secretary of the Interior, Bruce Babbitt, and Commissioner of Reclamation, Dan Beard, have been quoted extensively and often in the media that they intend to comply with the Congressional mandate to build the Animas-La Plata Project. We are informed that as late as last month, in an appearance before this Committee, the Secretary and the Commissioner both reiterated their commitment to build the Project. Actions, however, speak louder than words and, as Emerson said, "What you do speaks so loud that I cannot hear what you say."

The actions of the Secretary and the Commissioner in not requesting sufficient funds to enable construction of the Animas-La Plata Project to begin in a meaningful manner in fiscal year 1996 overshadow what they say. The actions of the Secretary and the Commissioner will cause additional delays and increase the possibility that the timetable for construction of the Animas-La Plata Project will not be met.

In addition to the $14 million appropriations we are requesting, an additional $3 million is presently available and within the Bureau's capability to expend. This $3 million is part of the cost sharing commitment made by the State of Colorado, the Water Districts, and the Water Commissions in Colorado and New Mexico. This $3 million represents a portion of the more than $42 million which the State of Colorado, the Water Districts, and the Water Commissions have escrowed pursuant to the June 30, 1986 Cost Sharing Agreement for Animas-La Plata Project.

The Board of Directors of the Animas-La Plata Water Conservancy District shares with the Colorado Ute Indian Tribes their frustration with the federal bureaucracy. The Animas-La Plata Project can truly be described as a perfect example of what is wrong with government in America. Two states, two Indian Tribes, four municipalities, four Water Conservancy Districts in Colorado, the San Juan Water Commission in New Mexico, and the enactment of Federal legislation have not been able to overcome the inertia of the federal bureaucracy. With the assistance of this Committee, however, we will have the financial resources to begin the long awaited construction of the Animas-La Plata Project in fiscal year 1996.

Thank you.

STATEMENT OF

SAN JUAN WATER COMMISSION
SAN JUAN COUNTY, NEW MEXICO

BEFORE THE SUBCOMMITTEE OF ENERGY & WATER DEVELOPMENT
OF THE COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

March 29, 1995

SUMMARY OF SPECIFIC ACTION REQUESTED:

APPROPRIATION OF ALL FUNDS RECOMMENDED
by
THE ADMINISTRATION FOR CONSTRUCTION
and
ADDITIONAL FUNDS TO ASSURE TIMELY CONSTRUCTION
of
THE ANIMAS -LA PLATA WATER RESOURCE DEVELOPMENT PROJECT
IN THE STATE OF COLORADO AND NEW MEXICO

Mr. Chairman and Members of the Committee:

Gentlemen, the San Juan Water Commission asks your support for sufficient funding to construct the Animas La Plata Water Resource Development Project. The San Juan Water Commission represents the Cities of Aztec, Bloomfield, and Farmington, ten Rural Water Users Association and San Juan County in New Mexico. These entities provide safe water to 80,000 plus citizens in San Juan County and the Navajo Nation community of Shiprock. Again we ask your committee to continue support for the Animas-La Plata Water Resources Project. The funds requested in the Administration's budget are inadequate tô advance the project as needed but will maintain our effort. Reality would request higher dollars so we may see substantive progress.

Currently our entities are exceeding their legal right to water under New Mexico law. Using the terms of our cost share contract with the Bureau of Reclamation, the San Juan Water Commissioners have requested use of our ALP water under state law. Assuming the State of New Mexico grants these requests the shortfall legally is band-aided. The real shortfall is wet water in dry years. A recent dry year we have investigated, 1977, would result, should a similar year occur, in severe water shortage one day in four. Worse, many dry days would be consecutive. New Mexico entities currently depend on stream flow in the Animas River for the major part of our public water supply. Construction of the ALP storage, Ridges Basin Reservoir, is needed to secure a dependable water supply for our citizens. Dependable storage is critical to New Mexico and calls for construction of Stage I of the Animas La Plata Project.

Opponents, despite an eight to five popular vote supporting and pledging our local revenues for the repayment contract, continue to tout "alternatives." The SJWC has requested (without response) these alternatives. We looked quickly at those advanced recently before this committee. Without a complete analysis we cannot endorse or deny their usefulness. None of those offered solve the "dry" year shortfall, which was studied by professional engineers and hydrologists per our instruction in 1994-95. Alternatives have been studied over the past four decades; compromise reached and decisions made. We need to move forward. Stumbling blocks such as endangered species concerns have been suggested, requiring alternatives.

Recently the Attorney General of New Mexico, Tom Udall, again raised these and other concerns. The SJWC and other supporters of the ALP negotiated new territory to develop the San Juan River Basin *Recovery Implementation Program*. We continue to support and participate while the "preservationist" refuse to step up to the table, and the "agricultural" interests refuse representation, stating their position of opposition by inaction on this critical effort. The Animas-La Plata, rather than being harmful to the environment, becomes a force to balance the needs of the endangered fish and the real community the fish and citizens depend. The human community in the Four Corners Region continues growing, with increases near 4.5% per year, already requiring in New Mexico the water supplies "held hostage" by the Animas-La Plata Project for 38 years.

New Mexico committed for the ALP water resources belonging to the citizens of New Mexico. This occurred 38 years ago in 1956. Looking back, the state should have received better assurances from the Congress and the Bureau of Reclamation a storage vessel would be built. Opponents say we were foolish to trust our federal leaders, this may or may not be true. When this project was conceived and designed critical water needs were not immediate. We need the project built to assure drinking water to the children alive today in San Juan County. The Animas La Plata Project was to be constructed concurrent with the Central Arizona Project, a project at completion, yet we have only turned a symbolic shovel on the Animas La Plata Project. The water needs of New Mexico could become, at mother nature's whim, critical before construction of even the first stage of the Animas La Plata. Demand for the ALP water, under current growth, outstrips supply before completion if the project construction began today. New Mexico needs the construction now, not in the next century.

Additionally our Ute neighbors, in good faith, worked with non Indian neighbors to achieve a compromise, the ALP, are you to leave them dry without their water. Life in the arid west must have wet water or perish. ALP provides the wet water to develop our common local economies, avoiding the demand for non productive federal assistance. Failure to complete the ALP could result in major litigation between the parties, Native Americans, states, federal government and local non Indians. The litigation costing more than we can afford, culturally and economically.

Today, we request the funding recommended by the administration, and the additional funds necessary to realistically begin construction the critical Animas La Plata Project. Consideration should be given other Congressional actions moving forward the promises made four decades ago, showing the opponents they are wrong this project can and should be constructed now.

L. Randy Kirkpatrick, Executive Director

WEDNESDAY, MARCH 29, 1995.

CENTRAL UTAH PROJECT

WITNESSES

HON. JAMES V. HANSEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

HON. ENID G. WALDHOLTZ, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

HON. BILL ORTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

GARY PALMER, CHAIRMAN, CENTRAL UTAH WATER CONSERVANCY DISTRICT

WAYNE OWENS, CHAIRMAN, UTAH RECLAMATION MITIGATION AND CONSERVATION COMMISSION

Mr. MYERS. Well, the committee will hear from Utah now. I remember the national convention, how they always—the person, the reading clerk would say "You-toe." Well, the dean of delegation, Jim Hansen, former members, and if you will introduce, present your delegation here.

The committee is pleased to see your delegation for the next 10 minutes here I guess, if you could appear with all of you together here. We are pleased to hear you.

Jim, you are the dean.

Mr. HANSEN. Thank you, Mr. Chairman. Mr. Bevill, we appreciate being with you. We have been in front of your committee so many times, I am almost embarrassed to show up and give you the story again.

Mr. BEVILL. We are always glad to see you, Jim, and we miss you.

Mr. HANSEN. Thank you. You are very kind, a true southern gentleman. The story that I have today is again on the Central Utah project. I know we have said there is nothing closer to eternal life than the Central Utah project.

Mr. MYERS. We have a lot of them in this committee.

Mr. HANSEN. I noticed that.

Mr. MYERS. You just heard one here.

Mr. HANSEN. We can't top the hundred years, although a former colleague is going to attempt it in just a moment. But we want to say to you that we sincerely appreciate the service you have given us. I don't know if you realize, I know everybody says thank you, and it is just they should, and I don't know if you realize how dry the State of Utah is. Evaporation exceeds precipitation in the State of Utah.

You go in those little southern Utah towns, other areas, they are dry, dusty little towns. And things like the Central Utah Project has been the thing that has changed it around. Now we are seeing the desert truly blossom like a rose. It is almost biblical that it is doing that, because we have impounded water.

This is probably the last big one that has been done, probably will be done. But what this will do, it will give us water of all kinds, from Salt Lake all the way down as far as we are going.

Of course we realize that things change over the years. My goodness, this thing started over, what, 26, 27, 28 years ago. And out of that, we see that sometimes we have to make some changes and costs have gone up. But I want to report to you today that the Central Utah water conservation area has done very well. They have lived up to many of the responsibilities they have been given and they are in compliance with the Central Utah Project Completion Act in their recently passed amendment. So I think we are on the track.

We have seen light at the end of tunnel. We see this thing coming out. With all the folks moving in from California and everywhere else, we are going to need the water. It is like everyone is defecting the great State of California. If I was there, I would defect, too. Carrying this—no disrespect to California. I am sure glad northern California isn't on the committee, I would be in trouble.

Mr. MYERS. We have got two of them.

Mr. HANSEN. I don't see them, that's the important thing.

Mr. ORTON. Strike your words, Jim.

Mr. HANSEN. We will take those two, if they want to come. We are just basically asking the committee support the President's request of 44.139 million to the programs that are currently in front of us, and I would hope that one of these days we can come in and tell you how things are progressing as far as having it almost completed. I am sure people who have more knowledge than I have will discuss some of those particular areas.

I do want to thank Chairman Myers for coming out to see us in the past, and spending some time on it, and Mr. Bevill for the great cooperation you have given us throughout the years. We would ask the committee to take those things into consideration.

And I would ask that my written testimony could be submitted.

[The statement of Mr. Hansen follows:]

STATEMENT OF
THE HONORABLE JAMES V. HANSEN
BEFORE THE
ENERGY AND WATER APPROPRIATIONS SUBCOMMITTEE
MARCH 29, 1995

Mr. Chairman, I want to thank you for the opportunity to appear before you today to provide testimony regarding the Central Utah Project. Your support and the support of the entire committee is greatly appreciated. Over the years, with your assistance and the assistance of the Ranking Member, the Central Utah Project Completion Act has been a milestone in water development.

The Central Utah Water Conservancy District has been successful in completing all of its responsibilities with regards to compliance of the Central Utah Project Completion Act and the recently passed amendments.

I am asking that the Committee support the President's request of $44,139,000 for programs of the Central Utah Project. I am pleased to see that the President has fully recognized in his budget the importance of the Central Utah Project. The Budget request is fair and something I believe that Committee can support.

I am confident that the District will continue to move forward with completion of their responsibilities. Mr. Chairman, again I would like to thank you for your assistance in the past and look forward to working with you and the committee in the years ahead to complete the Central Utah Project.

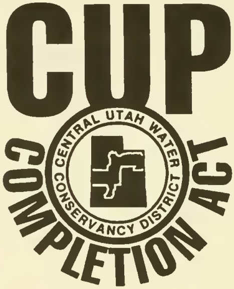
Mr. MYERS. Each of your statements will be placed in the record in entirety. And if you would like to summarize, we would appreciate it in the time interest.

[The information follows:]

Executive Summary

CENTRAL UTAH PROJECT

COMPLETION PROGRAM


CUP
COMPLETION ACT
CENTRAL UTAH WATER CONSERVANCY DISTRICT

FEBRUARY 1995

CENTRAL UTAH WATER CONSERVANCY DISTRICT

To: Don A. Christiansen
General Manager, CUWCD

From: H. Lee Wimmer, P.E.
CUPCA Program Manager

Date: March 8, 1994

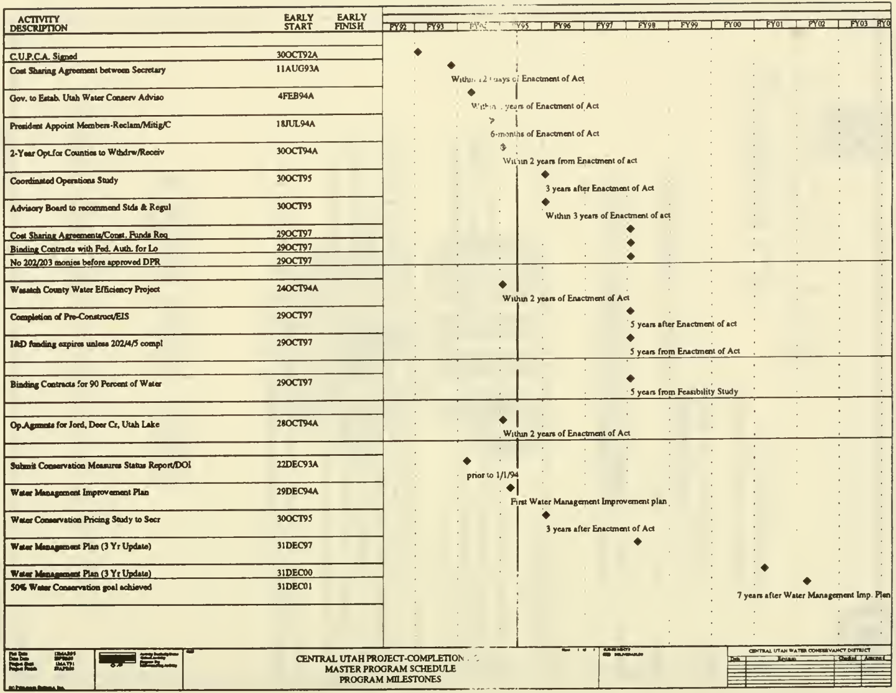
Subject: Central Utah Projects Completion Program
February 1995 Executive Summary

Enclosed is the Monthly Executive Summary for February 1995 for your use and distribution.

This executive summary has been compiled from the monthly reports submitted by each of the consultant teams. The work completed in the past month and future work planned by each of the teams is summarized along with all program expenditures.

As you will note upon inspection of the spreadsheet, "CUPCA Budget Trend Analysis" in the financial section, the CUPCA Team has expended $18,431,499 or 59.4% of the January 1994 ... June 1995 contract year budget of $31,034,100. Task monitoring indicates that 60.6% of the planned work has been completed in the 78.0% of time elapsed. In summary, the program is on budget, but nearly 90 days behind schedule.

The monthly reports, which contain additional data, are available for your review if additional information is needed.



ACTIVITY DESCRIPTION	EARLY START	EARLY FINISH
C.U.P.C.A. Signed	30OCT92A	
Cost Sharing Agreement between Secretary	11AUG93A	
Gov. to Estab. Utah Water Conserv Adviso	4FEB94A	
President Appoint Members-Reclam/Mitig/C	18JUL94A	
2-Year Opt.for Counties to Withdrw/Receiv	30OCT94A	
Coordinated Operations Study	30OCT95	
Advisory Board to recommend Stds & Regul	30OCT95	
Cost Sharing Agreements/Const. Funds Req	29OCT97	
Binding Contracts with Fed. Auth. for Lo	29OCT97	
No 202/203 monies before approved DPR	29OCT97	
Wasatch County Water Efficiency Project	24OCT94A	
Completion of Pre-Construct/EIS	29OCT97	
I&D funding expires unless 202/4/5 compl	29OCT97	
Binding Contracts for 90 Percent of Water	29OCT97	
Op.Agrmnts for Jord, Deer Cr, Utah Lake	28OCT94A	
Submit Conservation Measures Status Report/DOI	22DEC93A	
Water Management Improvement Plan	29DEC94A	
Water Conservation Pricing Study to Secr	30OCT95	
Water Management Plan (3 Yr Update)	31DEC97	
Water Management Plan (3 Yr Update)	31DEC00	
50% Water Conservation goal achieved	31DEC01	

FY92
FY93
FY94
FY95
FY96
FY97
FY98
FY99
FY00
FY01
FY02
FY03
FY0
Within 12 days of Enactment of Act
Within [illegible] years of Enactment of Act
6-months of Enactment of Act
Within 2 years from Enactment of act
3 years after Enactment of Act
Within 3 years of Enactment of act
Within 2 years of Enactment of Act
5 years after Enactment of act
5 years from Enactment of Act
5 years from Feasibility Study
Within 2 years of Enactment of Act
prior to 1/1/94
First Water Management Improvement plan
3 years after Enactment of Act
7 years after Water Management Imp. Plan

CENTRAL UTAH PROJECT-COMPLETION
MASTER PROGRAM SCHEDULE
PROGRAM MILESTONES

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CENTRAL UTAH PROJECTS COMPLETION PROGRAM
FEBRUARY 1995 EXECUTIVE SUMMARY

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CENTRAL UTAH PROJECT COMPLETION PROGRAM
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

- On February 17, 1995 the proposal to exclude Sevier County from the CUWCD was ratified. Documents to officially exclude the County from the District will be signed in March.

- On February 15, the Water Management Improvement Plan was approved by the Office of the Secretary of the Department of the Interior (DOI). This fulfills the requirements of Section 207(b)(1) of the Act. With the DOI's approval of the Plan, the remaining tasks required prior to initiation of each conservation measure under the Credit Program include: compliance with NEPA, the DOI's written approval of each feasibility report, and the execution of the appropriate Drainage and Minor Construction contract or Cooperative Agreement for each conservation measure.

Program Support Team

- Prepared the January 1995 CUPCA Program Executive Summary Report, and the CUPCA section of the February 15 Board of Directors meeting packet. This information included graphs and charts indicating budget and billings information according to Work Type, the contract status of the total CUPCA program, and activity summaries for each project.

- The monthly schedule update was prepared to include progress through January 31, 1995, and historical costs in the database were updated.

- Held three computer training classes – DOS, Introduction to the Network, and Quattro Pro 5.0 – as part of a 10-week semester of computer classes provided by the PCSS Team.

- Five Records Training workshops were conducted by the Records Manager. A total of twenty-eight staff members and consultants have successfully completed the training.

- Distributed two updates to the Technical Products Standards Manual (TPSM): a revised CUPCA Organizational Chart, and a revised portion of the Records Management Section.

Environmental Management Team

- Coordinated and attended the monthly agency/staff meeting
- Reviewed DOI comments on DR/WCWEP Feasibility Report
- Met and consulted with F&WS on biological assessment for Operation of Diamond Fork Creek in relationship to Ute ladies'-tresses orchid.
- Consultants/Project Managers environmental products activities included attending several credit program consultation meetings, and various project meetings.
- Attended the UOICC Steering Committee meetings.

Uinta Basin Replacement Projects Team

- Approved recommendations of preferred alternatives by tribal, planning team, and District boards.
- Completed the following analyses:
    - stream temperature data,
    - conservation pool,
    - aquatic habitat,

  and continued fish population data analysis.
- Completed vegetation maps for reservoir sites and canals on tribal lands.
- Completed the following Technical Memorandums:
    - draft PCR Water Quality Technical Memorandum
    - draft PCR Water Rights Technical Memorandum
    - Final Trace Elements Technical Memorandum
    - Final Sediment Analysis Technical Memorandum.
- Completed the following outlines:
    - overall draft detailed outline for PDEIS Chapter 3
    - draft annotated outlines for Chapter 3 T & E, wetlands, wildlife, soils, and mineral and energy resources sections.

Provo River/ Utah Lake Special Studies Team

- Completed remaining sections of Chapter 1 of PDEIS for Daniel Replacement/Wasatch County Water Efficiency Project (DR/WCWEP) and submitted for internal content review and comment.
- Met with the US Army of Corps of Engineers to discuss potential wetland impacts and mitigation measures on both the DR/WCWEP and the Provo River Restoration Project (PRRP).

- Distributed DE/WCWEP Chapter 3 final detailed outlines incorporating internal review comments to EIS Team.
- Revised PRRP wetland impact analysis and mitigation plan, continued preparation of the wetlands technical report.
- Prepared maps, figures and tables for Chapter 1 of PRRP PDEIS for distribution at ID Team Workshop No. 3.

Diamond Fork System Team

- Continued laboratory testing and evaluating field data, and began developing preliminary design data
- Developed hydrologic analysis for the Ute ladies'-tresses orchid colonies in Diamond Fork.
- Finalized Biological Assessment Work Plan
- Held "kickoff" meeting for final design of Diamond Fork Pipeline with design team.
- Initiated preparation of Environmental Commitment Checklist.

Spanish Fork Canyon - Nephi Irrigation System Team

- Planning agency coordination included meetings with: The Strawberry Water Users Association, Currant Creek Irrigation Company, East Juab County Water Conservancy District Board, Juab County Commissioners, Mapleton Irrigation Company, Springville Irrigation Company, and Mapleton City, to discuss and coordinate ongoing SFN System activities.
- The draft Hydrology Technical Report was completed.
- A draft of Chapter 1 of the EIS was completed.
- The revised Aquatic Resources and Wildlife Resources Workplans and accompanying agency cover letters were submitted to the SFN Team.
- Continued work on the draft Definite Plan Report chapters and determining the extent of economic studies, project lands, project water supply, project costs and benefits for the SFN System.

Water Management Improvement Studies Team

- Coordinated with the Department of Interior CUP Completion Act Office, on the contracts required for implementation of Credit Program projects. Draft contract and cooperative agreement were transmitted to Washington by the Program Coordinator's office for approval as to form.

- Began preparing the Scoping Summary Report for the Central Valley Water Reclamation Facility Water Reuse Project EIS.
- Incorporated a list of changes/revisions recommended for the Water Conservation Credit Program, based upon the experience of working with the program over the past year.
- The Water Management Improvement Studies Coordination Committee held a meeting February 9 and discussed: the Second Edition of the Credit Program, Study of Coordinated Operations Comprehensive List of Opportunities, and the status of the Utah Water Conservation Advisory Board's recommendations.
- District-wide Study of Coordinated Operations - held meetings to gather feedback on the Comprehensive List of Coordinated Operations Opportunities. Based on comments received, and preliminary analysis of ideas, the list was narrowed down, selecting the most promising opportunities. An outline for the final report was prepared along with preliminary scoping for each of the chapters.

Water Pricing Policy Studies Team

- In order to utilize the most current information available, further efforts on the Draft Final Report, and the subsequent Final Report, will be continued during the 1995-1996 Fiscal Year.

Washington Lake Dam Reconstruction

- Winter shutdown continues. Construction activities are on hold until spring, when the contractor plans to finish the dam embankment.

Lost Lake Dam Reconstruction

- The USBR is proceeding with the design process.
- Prepared plans and specifications.
- Held a 90%-design review meeting at the end of the month, at the USBR offices in Provo.

Monk's Hollow Dam Pre-design Studies

- Work continued on the dam type selection. Layouts and quantities were completed for the arch dam, the embankment dam, and the roller-compacted concrete (RCC) dam. Costs were completed for the arch dam and the embankment dam.

- Completed hydraulic design and preliminary layouts of the outlets and spillways for the embankment dam and the RCC dam.
- Definite project plans were developed for the spillways and outlet works for all three types of dam.

PLANNED ACTIVITIES FOR MARCH 1995

The CUPCA Team's efforts for March will include:

Program Support Team

- The monthly schedule update will be posted to the Master Program Schedule to include progress through February 28, 1995, and historical costs in the financial tracking database will be updated.
- Develop and prepare the February 1995 CUPCA Program Executive Summary report, and the CUPCA section of the March 1995 Board of Directors meeting packet.
- Distribute an update to the Technical Products Standards Manual which explains what is expected in "draft" NEPA-related documents, as far as level of "completeness", level of edit, and quality of draft maps and figures.
- Conduct 5 more Network Users training classes. Ongoing computer network support and maintenance will continue.
- Records Management instruction will continue in March.

Environmental Management Team

- Coordinate the District internal review of various Spanish Fork-Nephi Irrigation System Project technical reports.
- Assist in developing cost estimates for preparing the Central Valley Reuse Project EIS.
- Review first draft of Central Valley Reuse Project scoping report.
- Review and approve the scoping summary on the Wasatch County projects.

Uinta Basin Replacement Projects Team

- EIS:
  - Complete a draft Chapter 1 for EIS.
  - Complete draft annotated outlines for remaining EIS sections.
  - Finalize detailed outlines for EIS Technical Reports.
- Continue with preparation of Land and Physical Resources PDEIS section.
- Conduct a HEP Team meeting on March 21-22, 1995 to present HEP study results.

- Technical Memorandums:
    - Continue preparing Water Use Technical Memorandum.
    - Review draft and complete the final Water Rights Technical Memorandum.
    - Complete and submit the Final Water Supply Technical Memorandum.
    - Prepare the Final Technical Memorandum on Land Use and Irrigation.

Provo River/ Utah Lake Special Studies Team

- Continue analysis of resource impacts and complete Wetlands, Threatened & Endangered Species, Cultural Resources, and Water Quality technical reports, for both projects: Daniel Replacement/Wasatch County Water Efficiency (DR/WCWEP), and the Provo River Restoration Project (PRRP).

- Complete final alternatives simulation with the PROSIM and MODFLOW models and prepare Water Resources Technical Report for both the DR/WCWEP and PRRP.

- Prepare outline of Chapter 4 of PDEIS and submit to CUWCD for review and comment.

- Print Final Scoping Summary Report for DR/WCWEP and PRRP, and provide to CUWCD for distribution.

Diamond Fork System Team

- Complete Geotechnical analysis of field investigations.

- Initiate corrosion protection studies and field investigations.

- Submit and finalize Ute ladies'-tresses orchid monitoring plan for Diamond System and operation and Monks Hollow Dam upon receiving comments from CUWCD.

- Prepare plans and specifications (TOC) for 25% internal review.

- Stake pipeline centerline upon receiving environmental clearance to proceed.

Spanish Fork Canyon - Nephi Irrigation System Team

- Initiate the aerial mapping for the main conveyance facility.

- A Class I Cultural Resources survey of the Utah Lake area will be conducted as will a Class III survey of the Mona pumping plant site. The Utah Lake information will be incorporated into the Utah Lake Technical Report.

- Continue to hold Planning Agency coordination meetings.

- Continue work on the draft Definite Plan Report, and prepare a draft of the distribution list for the draft DPR.

- NEPA compliance tasks will include: revise and resubmit the Hydrology Technical Report; submit the Wildlife Resources and Wetlands Technical Reports to Project Manager for review prior to formal submittal to the District; and revise Chapter 1 of the EIS to reflect the Team's comments.

Water Management Improvement Studies Team

- Continue agreement preparation and negotiations with applicants for implementation of previously selected conservation measures.

- Prepare the Scoping Summary to complete the scoping activities for the CVWRF Water Reuse EIS. The summary outlines issues raised during scoping that could be addressed during the preparation of the EIS.

- Distribute copies of the final Comprehensive List of Coordinated Operations to meeting participants. Hold meetings with river commissioners and state agency personnel as required to gather specific information necessary to evaluate the selected opportunities. Begin to write the draft report for submittal to the Secretary of the Interior.

- Make changes to the Credit Program and prepare the Second Edition.

- Coordinate with an environmental organization regarding a potential Public Education proposal to the Credit Program.

Water Pricing Policy Studies Team

- Project management and coordination services will be provided, as requested by the WMIS Project Manager.

Washington Lake Dam Reconstruction

- Winter shutdown will continue.

Lost Lake Dam Reconstruction

- Hold a final design review meeting on March 17.

- Final plans and specifications are scheduled to be available for the bidding process by the end of March.

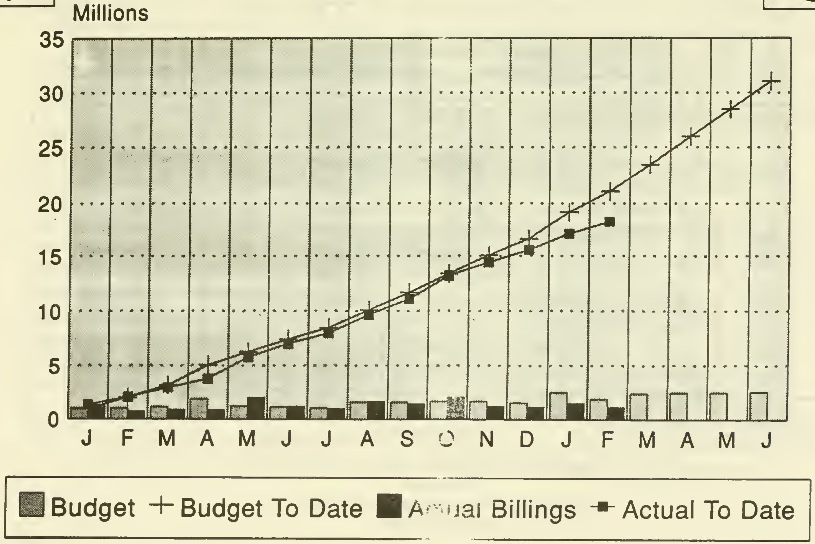
Monk's Hollow Dam Pre-design Studies

- Complete work on the dam type selection.

Central Utah Water Conservancy District

CUP COMPLETION PROGRAM

JAN94..JUN95 CONTRACT YEAR EXPENDITURES



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CONTRACT STATUS
CENTRAL UTAH PROJECT COMPLETION PROGRAM
Total Program
1994 CONTRACT YEAR (JAN94..JUN95)

DESCRIPTION	EXPENDITURES			THREE-MONTH PLANNED EXPENDITURES		
	Previous	February	Totals	March	April	May
Program Consultant Support Services	313,198.61	2,716.93	315,915.54	20,000	20,000	20,000
Uinta Basin Replacement Project	2,817,137.97	275,571.20	3,092,709.17	535,930	215,373	214,522
Provo River / Utah Lake Special Studies	1,662,355.38	143,050.11	1,805,405.49	270,000	235,000	249,200
Diamond Fork	775,615.98	22,420.81	798,036.79	300,000	193,246	206,594
Spanish Fork Canyon/Nephi Irrigation	3,689,871.03	318,774.57	4,008,645.60	363,000	299,000	373,000
Water Management Studies	798,643.31	65,693.82	864,337.13	79,500	40,500	40,500
Water Pricing Policy Study	109,783.17	0.00	109,783.17	0	0	0
Provo River Water Rights Purchase	625,640.99	0.00	626,640.99	0	0	0
Washington Dam Reconstruction	1,028,923.43	134.21	1,029,057.64	0	0	0
CUWCD Direct Costs / Agencies	2,890,638.81	327,253.06	3,217,891.87	632,500	550,000	550,000
CUWCD Title IV	2,563,076.00	0.00	2,563,076.00	0	0	0
TOTAL	$17,275,884.68	$1,155,614.71	$18,431,499.39	$2,200,930	$1,553,119	$1,653,816
TOTAL 94..JUN95 BUDGET $31,034,100.00	REMAINING 94..JUN95 BUDGET		$12,602,600.61	$10,401,671	$8,848,552	$7,194,736

TOTAL CONTRACT STATUS SUMMARY

DESCRIPTION	PREVIOUS YEARS	1994 EXPENDITURES TO DATE	TOTAL TO DATE
Totals - TITLE II/TITLE III	$17,089,953.36	$15,868,423.39	$32,958,376.75
Totals - TITLE IV	$0.00	$2,563,076.00	$2,563,076.00
TOTAL EXPENDITURES	$17,089,953.36	$18,431,499.39	$35,521,452.75

Special Note: Title IV payment for State of Utah consisted of $3,000,000; of which $1,959,424 was from reimbursements for prior expenditures.

Note: Budget increased to include period thru June 30, 1995.

CENTRAL UTAH PROJECT COMPLETION PROGRAM
MONTHLY BUDGET COMPARISON

1994 CONTRACT YEAR (JAN94..JUN95)

DESCRIPTION	FEBRUARY BUDGET VS. ACTUAL			
	Budget	Actual	Variance	%
Program Consultant Support Services	20,000	2,716.93	17,283.07	86.4%
Uinta Basin Replacement Project	524,830	275,571.20	249,258.80	47.5%
Provo River / Utah Lake Special Studies	273,000	143,050.11	129,949.89	47.6%
Diamond Fork	250,000	22,420.81	227,579.19	91.0%
Spanish Fork Canyon/Nephi Irrigation	434,000	318,774.57	115,225.43	26.6%
Water Management Studies	74,500	65,693.82	8,806.18	11.8%
Water Pricing Policy Study	0	0.00	0.00	0.0%
Provo River Water Rights Purchase	0	0.00	0.00	0.0%
Washington Dam Reconstruction	0	134.21	(134.21)	
CUWCD Direct Costs / Agencies	550,000	327,253.06	222,746.94	40.5%
CUWCD Title IV	0	0.00	0.00	0.0%
TOTAL	$2,126,330.00	$1,155,614.71	970,715.29	45.7%

DESCRIPTION	YEAR TO DATE BUDGET VS. ACTUAL			
	Budget	Actual	Variance	%
Program Consultant Support Services	400,000.00	315,915.54	84,084.46	21.0%
Uinta Basin Replacement Project	3,699,460.00	3,092,709.17	606,750.83	16.4%
Provo River / Utah Lake Special Studies	2,264,720.00	1,805,405.49	459,314.51	20.3%
Diamond Fork	1,482,300.00	798,036.79	684,263.21	46.2%
Spanish Fork Canyon/Nephi Irrigation	4,255,000.00	4,008,645.60	246,354.40	5.8%
Water Management Studies	956,330.00	864,337.13	91,992.87	9.6%
Water Pricing Policy Study	113,000.00	109,783.17	3,216.83	2.9%
Provo River Water Rights Purchase	700,000.00	626,640.99	73,359.01	10.5%
Washington Dam Reconstruction	1,500,000.00	1,029,057.64	470,942.36	31.4%
CUWCD Direct Costs / Agencies	4,327,774.00	3,217,891.87	1,109,882.13	25.7%
CUWCD Title IV	2,540,576.00	2,563,076.00	(22,500.00)	-0.9%
TOTAL	$22,239,160.00	$18,431,499.39	3,807,660.61	17.1%

Note: Numbers in ( ), or - indicates over budget.

CUPCA BUDGET ** TREND ANALYSIS

{As of February 28, 1995}

ACCOUNT NO.	DESCRIPTION	Expended Thru FEB95	JAN94 JUN95 BUDGET	% Budget Expended	% Task Completed	UNSPENT Rev. Bud	PROJECTED COST	PROJECTED VARIANCE
PROGRAM CONSULTANT SUPPORT SERVICES		315915.54	$460,000	65.8%	77.8%	164084.46	406100	73900
UINTA BASIN REPLACEMENT PROJECTS								
1.E.17.071	UINTA UNIT PLAN/EIS/PRECONST	2169641.30	$3,461,939	62.7%	65.6%	1292297.70	3307400	154539
1.F.19.182	UPALCO UNIT PLAN/EIS/PRECONST	923067.87	$1,306,765	70.6%	68.4%	383697.13	1350500	-43735
	BIA/UTE TRIBE PLANNING	384559.96	$1,296,000	29.7%	31.0%	911440.04	1240500	55500
SPECIAL STUDIES								
1.B.15.084	WASATCH CO. WATER EFFICIENCY PROJECT	1186609.74	$2,096,810	56.6%	67.2%	910200.26	1765800	331010
1.B.15.082	PROVO RIVER HYDROLOGY/WATER RIGHTS MODEL	68922.82	$79,340	86.9%	88.0%	10417.18	78300	1040
1.W.25.085	DANIELS REPLACEMENT PIPELINE	481701.31	$696,400	69.2%	71.8%	214698.69	671300	25100
DIAMOND FORK								
1.B.01.002	MONKS HOLLOW DAM	212120.87	$285,000	74.4%	75.0%	72879.13	282800	2200
1.B.01.004	DIAMOND FORK PIPELINE - Pre-design	644336.71	$653,883	98.5%	100.0%	9546.29	644300	9583
1.B.01.004	DIAMOND FORK PIPELINE - DESIGN	110394.99	$995,506	11.1%	11.1%	885111.01	994500	1006
SPANISH FORK CANYON-NEPHI IRRIGATION								
1.B.02.021	PLANNING,EIS,PRE-CONST. REPORT	3978077.09	$5,598,000	71.1%	71.4%	1619922.91	5571500	26500
1.B.15.082	STRAWBERRY/PROVO CONVEYANCE STUDY	99226.76	$125,000	79.4%	80.0%	25773.24	124000	1000
GROUNDWATER PROGRAM (DWRe)		0.00	$1,000,000	0.0%	0.0%	1000000.00	1000000	0
WATER CONSERVATION CREDIT PROGRAM		0.00	$850,000	0.0%	0.0%	850000.00	850000	0
WATER MANAGEMENT								
1.Y.09.126	WATER MANAGEMENT IMPROVEMENT PLAN	660405.90	$756,910	87.3%	88.1%	96504.10	749600	7310
1.Y.09.130	COORDINATED OPERATIONS STUDY	361690.79	$491,300	73.6%	75.2%	129609.21	481200	10100
1.Y.09.132	UTAH WATER CONSERVATION ADVISORY BOARD	7569.08	$11,120	68.1%	72.2%	3550.92	10500	620
1.Y.09.128	WATER POLICY PRICING STUDY	109783.17	$141,500	77.6%	79.2%	31716.83	138600	2900
HIGH MOUNTAIN LAKES								
1.W.25.098	WASHINGTON DAM RECONSTRUCTION	1028923.43	$1,500,000	68.6%	68.6%	471076.57	1499900	100
PROVO RIVER WATER RIGHTS (1.W.25.078)		626640.99	$700,000	89.5%	89.5%	73359.01	700200	-200
CENTRAL UTAH WATER CONSERVANCY DISTRICT		1302648.69	$2,834,477	46.0%	46.0%	1531828.31	2831800	2677
AGENCIES		1196186.38	$1,987,788	60.2%	60.2%	791601.62	1987000	788
Contingencies		0.00	$1,145,788	0.0%	0.0%	1145786.00	1145786	0
CUWCD Title IV Monies		2563078.00	$2,540,578	100.9%	100.0%	-22500.00	2563100	-22524
	TOTAL:	18431499.38	$31,034,[illegible]	59.4%	60.6%	$12,602,601	$30,394,666	$639,414

CUPCA
AGENCY COORDINATION BUDGET AND STATUS FOR CONTRACT YEAR JAN 94 .. JUN 95
AS OF FEBRUARY 1995

AGENCIES	BUDGET	INVOICED TO DATE	REMAINING BALANCE	DISTRICT MANAGER
Central Valley WRF	$35,000.00	$35,000.00	$0.00	Karen
Duchesne County Water Resources Board	$15,000.00	$0.00	$15,000.00	Terry
Duchesne County Soil Conservation District	$10,000.00	$2,044.37	$7,955.63	Terry
East Juab Water Conservancy District	$15,000.00	$5,000.00	$10,000.00	Sheldon
EPA Travel Funds	$10,500.00	$2,574.52	$7,925.48	Harold
Sevier River Water Users Association	$25,000.00	$0.00	$25,000.00	Sheldon
Utah Division of Wildlife Resources (Duchesne River Fish Study)	$27,500.00	$27,500.00	$0.00	Harold
Utah Division of Wildlife Resources	$168,000.00	$91,063.14	$76,936.86	Harold
Utah Outdoor Interest Coordinating Council	$151,300.00	$131,144.03	$20,155.97	Harold
US Department of Interior	$190,100.00	$190,100.00	$0.00	Harold
US Fish & Wildlife	$558,250.00	$182,652.91	$375,597.09	Harold
US Forest Service	$60,000.00	$16,346.79	$43,653.21	Harold
US Geological Survey (Juab County groundwater study)	$97,500.00	$97,500.00	$0.00	Sheldon
US Geological Survey (Wasatch County groundwater monitoring)	$21,550.00	$21,550.00	$0.00	Dave P.
US Geological Survey (Contaminent Study)	$180,080.00	$180,080.00	$0.00	Harold
Upper Sevier Water Conservancy District	$15,000.00	$5,000.00	$10,000.00	Sheldon
Ute Tribe	$15,000.00	$6,559.96	$8,440.04	Terry
US Soil Conservation Service	$257,000.00	$106,928.66	$150,071.34	Sheldon
Wasatch County ASCD	$61,008.00	$40,168.00	$20,840.00	Kirt
Wasatch County (Water District Planning 50%)	$75,000.00	$52,050.00	$22,950.00	Kirt
TOTAL	$1,987,788.00	$1,193,262.38	$794,525.62	

Note: Some of the agencies only bill the District on a quarterly basis; others only bill annually.

This sheet provides a detailed agency budget/cost breakdown. The totals are included in budget account 1.Y.12.188.VO.

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COMPENSATION FOR USE OF DISTRICT SPACE

FEBRUARY 1995

					MONTHLY BILLING				
	Assigned Areas	Percent	Common Use Allocation	Total Space Allocation	Building Depreciation	Building Maintenance	Building Utilities	Telephone	TOTAL
DISTRICT/Agencies *	1,991.0	63.96%	7,243.0	9234.0	$3,646.22	$1,133.16	$485.10	$443.42	$5,707.90
CH2M Hill	106.0	3.41%	193.0	299.0	$194.12	$60.33	$25.83	$23.61	$303.89
Horrocks	106.0	3.41%	193.0	299.0	$194.12	$60.33	$25.83	$23.61	$303.89
Montgomery-Watson	309.0	9.93%	1,124.0	1433.0	$565.89	$175.86	$75.29	$68.82	$885.86
EWP	227.0	7.29%	826.0	1053.0	$415.72	$129.20	$55.31	$50.56	$650.79
RMI	48.0	1.54%	175.0	223.0	$87.90	$27.32	$11.70	$10.69	$137.61
Franson-Noble	114.0	3.66%	415.0	529.0	$208.77	$64.88	$27.78	$25.39	$326.82
Bookman-Edmonston	212.0	6.81%	771.0	983.0	$388.25	$120.66	$51.65	$47.22	$607.78
TOTALS	3,113.0	100.0%	10,940.0	14053.0	$5,700.99	$1,771.74	$758.49	$693.32	$8,924.54
					$5,701.00	$1,771.74	$758.47	$693.31	$8,924.52

Note: Building depreciation based on cost of $ 1,026,187.73 depreciated over 15 years. The other costs are actual costs.

* Includes space for Utah Division of Wildlife Resources, Utah Outdoor Interest Coordinating Council, US Fish & Wildlife Service, US Forest Service, Soil Conservation Service, etc.

PROGRAM SUPPORT SERVICES
CH2M HILL INC./HORROCKS ENGINEERS
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

Significant accomplishments during the month included:

- Prepared the January 1995 CUPCA Program Executive Summary Report, and the CUPCA section of the February 15 Board of Directors meeting packet. This information included graphs and charts indicating budget and billings information according to Work Type, the contract status of the total CUPCA program, and activity summaries for each project.
- The monthly schedule update was prepared to include progress through January 31, 1995, and historical costs in the database were updated.
- Held three computer training classes – DOS, Introduction to the Network, and Quattro Pro 5.0 – as part of a 10-week semester of computer classes provided by the PCSS Team.
- Five Records Training workshops were conducted by the Records Manager. A total of twenty-eight staff members and consultants have successfully completed the training.
- Distributed two updates to the Technical Products Standards Manual (TPSM): a revised CUPCA Organizational Chart, and a revised portion of the Records Management Section.

PLANNED ACTIVITIES FOR MARCH 1995

The Program Support team's efforts for March will include:

- The monthly schedule update will be posted to the Master Program Schedule to include progress through February 28, 1995, and historical costs in the financial tracking database will be updated.
- Develop and prepare the February 1995 CUPCA Program Executive Summary report, and the CUPCA section of the March 1995 Board of Directors meeting packet.
- Distribute an update to the Technical Products Standards Manual which explains what is expected in "draft" NEPA-related documents,

as far as level of "completeness", level of edit, and quality of draft maps and figures.

- Conduct 5 more Network Users training classes. Ongoing computer network support and maintenance will continue.

- Records Management instruction will continue in March.

ENVIRONMENTAL MANAGEMENT
CENTRAL UTAH WATER CONSERVANCY DISTRICT
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

Joint Lead and Cooperating and Agencies Coordination Activities

- Coordinated and attended the monthly agency/staff meeting
- Reviewed DOI comments on DR/WCWEP Feasibility Report
- Met and consulted with F&WS on biological assessment for Operation of Diamond Fork Creek in relationship to Ute ladies'-tresses orchid.

Coordination with UOICC/Environmental Groups

- Attended the UOICC Steering Committee meetings.

Consultants/Project Managers Environmental Products Activities

- Attended several credit program consultation meetings
- Attended various project meetings.
- Assisted in the review and revising the credit program feasibility report procedures and format
- Attended the WCWEP meeting on the cultural tech reports and provided direction and guidance
- Attended and assisted in meeting with the COE on the WCWEP wetland issues
- Attended SFN wetlands workshop
- Received for District review the SFN Hydrology Technical Report and chapter one
- Attended the SFN monthly statusing meeting
- Attended coordination meeting on Strawberry/Provo Water Conveyance Study

Title III Coordination Activities

- Met with URMCC Executive Director on Title III Programs

PLANNED ACTIVITIES FOR MARCH

- Coordinate the District internal review of various Spanish Fork-Nephi Irrigation System Project technical reports.
- Assist in developing cost estimates for preparing the Central Valley Reuse Project EIS.
- Review first draft of Central Valley Reuse Project scoping report.
- Review and approve the scoping summary on the Wasatch County projects.

UINTA BASIN REPLACEMENT PROJECTS
CH2M HILL INC./HORROCKS ENGINEERS
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

- Met with Moon Lake Water Users on February 1, 1995 to discuss selection of preferred alternatives.
- Met with Whiterocks Irrigation Company on February 7, 1995 to discuss preferred alternatives.
- Met with CUWCD Board on February 15, 1995 to present the preferred alternatives.
- Met with Dinosaur Land Resource Conservation and Development group on February 21, 1995 to discuss Roosevelt Nature Center.
- Met with FWS on February 27,1 995 to discuss T & E fish issues.
- Met with Ecotone on February 28, 1995 to discuss coordination of HEP and other biological tasks.
- Held weekly coordination meetings with District staff to review progress and weekly planned activities.
- A monthly progress report reviewing the activities of February and weekly Public Involvement reports were prepared and submitted to the District.
- Produced and sent wildlife maps to the USFWS.
- Completed compilation and analysis of stream temperature data.
- Completed conservation pool analysis.
- Completed aquatic habitat analysis.
- Continued fish population data analysis.
- Completed vegetation maps for reservoir sites and canals on tribal lands.
- Completed the draft PCR Water Quality Technical Memorandum.
- Completed the draft PCR Water Rights Technical Memorandum.

- Completed riparian area maps along the Lake Fork, Yellowstone, Uinta, Whiterocks, and Duchesne Rivers.
- Consolidated all water quality data into one database for EIS Technical Report.
- Approved recommendations of preferred alternatives by tribal, planning team, and District boards.
- Completed overall draft detailed outline for PDEIS Chapter 3.
- Completed draft annotated outlines for Chapter 3 T & E, wetlands, wildlife, soils, and mineral and energy resources sections.
- Continued preparation of sections of the EIS Water Resources Technical Report.
- Began to produce the ethnographic overview.
- Began separating land owners of less than 10 acres and greater than 960 acres.
- Produced vegetation maps for reservoir sites and canals on tribal land.
- Continued to combine water resources data files to one EIS database.
- Updated the map for Yellowstone River Dam Site "D".
- Continued water resources model runs for the proposed alternatives.
- Continued evaluation of surface water quantity and quality for the EIS Water Resources Technical Report.
- Began refinement of vegetation maps in the GIS for the added canals.
- Estimated irrigation and repayment capacity.
- Began estimating flood control benefits.
- Began estimating M & I benefits.
- Completed the Final Trace Elements Technical Memorandum.
- Completed the Final Sediment Analysis Technical Memorandum.
- Input big-game habitat, and sage grouse lek and habitat, and other wildlife data into the CAD system.
- Began cultural resources analysis of features.

- Began paleontological resources analysis of features.
- Prepared a memorandum of Procedures to Determine Suitability of Lands to Receive Project Water.
- Reviewing Cultural Resources Programmatic Agreements with Ute Tribe, DOI, SHIPO, USFS, and Advisory Council for Historic Preservation.
- Continued with conceptual HEP/Wetlands mitigation plans.

PLANNED ACTIVITIES FOR MARCH

- Meet with Talmage area water users to discuss alternatives on March 2, 1995
- Meet with FWS on March 21, 1995 to discuss plans for future studies on the Duchesne River related to T & E fish.
- Conduct a HEP Team meeting on March 21-22, 1995 to present HEP study results.
- Finalize separating land owners of less than 10 acres and greater than 960 acres.
- Continue to analyze water quality data to determine impacts from implementation of alternatives.
- Complete a draft Chapter 1 for EIS.
- Complete draft annotated outlines for remaining EIS sections.
- Continue with preparation of Land and Physical Resources PDEIS section.
- Develop draft PCR annotated outline.
- Complete Flood Control and M & I Benefits analysis.
- Continue to input HEP data, establish baseline habitat units, and predict futures on impact and mitigation sites.
- Continue to prepare the draft outline and compilation of existing data for the PCR.
- Work up data for groundwater quality and quantity.
- Continue preparing Water Use Technical Memorandum.
- Review draft and complete the final Water Rights Technical Memorandum.
- Finalize engineering details to stabilize the high mountain lakes.
- Continue with water resources model runs for the proposed alternatives.
- Continue cultural resources analysis of features.
- Continue paleontological resources analysis.

- Begin to prepare for ethnographic informant interviews by American West Center.
- Complete the ethnographic overview.
- Continue to prepare sections of the EIS Water Resources Technical Report.
- Continue with preparation of the Threatened and Endangered Species Technical Report.
- Continue with preparation of the Wetlands Technical Report.
- Continue with preparation of the Wildlife Technical Report.
- Continue to conduct flow analysis using the water resources model.
- Continue to evaluate surface water quantity and quality for the EIS Water Resources Technical Report.
- Finalize detailed outlines for EIS Technical Reports and PDEIS.
- Update the project drawing library as necessary.
- Continue writing portions of the PDEIS.
- Update wetland and riparian habitat data along canals, proposed pipelines, and proposed reservoirs in the GIS database for tribal and non-tribal sites.
- Complete and submit the Final Water Supply Technical Memorandum.
- Update data fact sheets as necessary.
- Hold weekly coordination meetings with District staff.
- Prepare the Final Technical Memorandum on Land Use and Irrigation.
- Complete the draft engineering details for canal rehabilitation diversion dams, dams, and pipelines.
- Continue IFIM analysis.
- Complete fish population data analysis.
- Meetings will continue with Stetson Engineers and their sub-contractors to coordinate activities.

- Continue collecting literature review data for EIS Land and Physical Resources.
- Continue to use the water balance model to verify the water supply for revised alternatives.
- Begin to write the Cultural Resources Technical Report.

Uintah Unit

- Continue stream-gaging on Dry Gulch Creek and the Uinta River.

Upalco Unit

- Continue stream-gaging on Lake Fork River.
- Continue the mapping of water rights land.

PROVO RIVER/UTAH LAKE SPECIAL STUDIES PROGRAM
MONTGOMERY WATSON, CONSULTING ENGINEERS, INC.
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

Daniel Replacement/Wasatch County Water Efficiency Project

- Completed remaining sections of Chapter 1 of PDEIS and submitted for internal content review and comment.

- Met with the US Army of Corps of Engineers to discuss potential wetland impacts and mitigation measures; discussed wetlands permitting.

- Distributed Chapter 3 final detailed outlines incorporating internal review comments to EIS Team.

- Met with CUWCD to discuss revisions to the first draft of Cultural Resources Technical Report. Made revisions and submitted to the CUWCD for review.

Provo River Restoration Project EIS

- Revised wetland impact analysis and mitigation plan, continued preparation of the wetlands technical report.

- Met with the US Army of Corps of Engineers and CUWCD to discuss potential wetland impacts, mitigation measures and mitigation plan.

- Prepared maps, figures and tables for Chapter 1 of PDEIS for distribution at ID Team Workshop No. 3.

- Met with CUWCD to discuss revisions to the first draft of Cultural Resources Technical Report. Made revisions and submitted to the CUWCD for review.

PLANNED ACTIVITIES FOR MARCH

Daniel Replacement/Wasatch County Water Efficiency Project

- Continue analysis of resource impacts and complete Wetlands, T & E Species, Cultural Resources, and Water Quality technical reports.
- Complete final alternatives simulation with the PROSIM and MODFLOW models and prepare Water Resources Technical Report.
- Prepare outline of Chapter 4 of PDEIS and submit to CUWCD for review and comment.
- Print Final Scoping Summary Report and provide to CUWCD for distribution.

Provo River Restoration Project EIS

- Continue analysis of resource impacts and complete Wetlands, T & E Species, Wildlife, Cultural Resources, and Water Quality technical reports.
- Complete final alternatives simulation with the PROSIM and MODFLOW models and prepare Water Resources Technical Report.
- Prepare outline of Chapter 4 of PDEIS and submit to CUWCD for review.
- Print Final Scoping Summary Report and provide to CUWCD for distribution.

DIAMOND FORK SYSTEM
BOYLE ENGINEERING CORPORATION
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

Activities performed during February on the Diamond Fork System included:

- Continued laboratory testing and evaluating field data, and began developing preliminary design data.
- Developed hydrologic analysis for the Ute ladies'-tresses orchid colonies in Diamond Fork.
- Finalized Biological Assessment Work Plan.
- Held "kickoff" meeting for final design of Diamond Fork Pipeline with design team.
- Initiated preparation of Environmental Commitment Checklist
- Initiated final design of Diamond Fork Pipeline and Road Rehabilitation
    - Pipe Alignment
    - Pipeline Design
    - Road Drainage
    - Road Design

PLANNED ACTIVITIES FOR MARCH

- Complete Geotechnical analysis of field investigations
- Initiate corrosion protection studies and field investigations
- Submit and finalize Ute ladies'-tresses orchid monitoring plan for Diamond System and operation and Monks Hollow Dam upon receiving comments from CUWCD.
- Prepare plans and specifications (TOC) for 25% internal review.
- Stake pipeline centerline upon receiving environmental clearance to proceed.
- Perform Surge analysis of Diamond Fork Pipeline
- Layout initial horizontal and vertical road alignment

SPANISH FORK CANYON - NEPHI IRRIGATION SYSTEM
BOOKMAN-EDMONSTON ENGINEERING, INC.
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

Task B0.1 - Definite Plan Report (DPR)

- Investigations DPR - Continued preparation of preliminary information for DPR activities including water supply, environmental, project lands, municipal & industrial, and other planning.

- Prepare Draft DPR - Continued with the preparation of DDPR chapters, initiated the review and initial revision of the DDPR chapters. Prepared a draft of the distribution list for the Draft DPR.

- Financial Analysis - Continued work on determining the extent of economic studies, project lands, project water supply, project costs, and project benefits for the SFN System.

- Planning Agency Coordination

  February 8 - The Strawberry Water Users Association held a Board Meeting to conduct monthly business and discuss and coordinate ongoing SFN System activities.
  February 10 - the Currant Creek Irrigation Company met with the SFN Project Manager to discuss and coordinate ongoing SFN System activities.
  February 13 - Held the SFN System Monthly Agency Meeting, to update interested agencies on the planning and NEPA processes associated with the SFN System. The agencies were given a preview of the Hydrology and Aquatics Technical Reports which are being reviewed by the SFN Team.
  February 16 - the East Juab County Water Conservancy District Board Meeting was held. Monthly District business was conducted and an update on the SFN System was provided.
  February 17 - the Juab County Commissioners and Levan representatives met in Nephi to further discuss and coordinate Levan related issues.
  February 22 - the SFN System Project Manager met with representatives from the Mapleton Irrigation Company, Springville Irrigation Company, and Mapleton City to discuss the Mapleton-Springville Lateral.

Task B3 - Predesign

- Aerial Mapping - Continued work on completing requirements for approval of the aerial mapping subcontract agreement.

Task E0 - NEPA Compliance

- The draft Hydrology Technical Report submitted for review on February 4.

- A draft of Chapter 1 of the EIS was submitted for review.

- Several members of the SFN Team involved in the preparation of the Utah Lake Technical Report conferenced via phone to discuss progress made to date and upcoming deliverable due dates.

- Work continued on the Wetlands Technical Report. A wetlands/ hydrology technical working group session was held in Utah to resolve the final assumptions underlying the impact analysis for the wetlands reports. The resource specialists' sections of the Utah Lake Technical Report were edited and reviewed by the Team.

- Following the Monthly Agency Meeting, members of the SFN Team met with the Project Coordination and Project Manager to discuss the Hydrology Technical Report.

- The resource specialists submitted draft annotated outlines of their Chapter 3 sections.

- The revised Aquatic Resources and Wildlife Resources Workplans and accompanying agency cover letters were submitted to the SFN Team.

- A revised Binns analysis was conducted for Diamond Fork and a draft was completed.

- Letters to the Indian tribes were prepared. The letters advised the tribes of the SFN System project and requested their review of project maps to identify any potential issues they might be concerned about.

Task Z9 - Project Management/Administration

- Statused the detailed project schedule for the SFN System to reflect work performed during February.

- Initiate work on the preparation of the 1995/96 Work Plan and budgets.

PLANNED ACTIVITIES FOR MARCH

Task B0.1 - Definite Plan Report (DPR

- Investigations DPR – Continue with the 'Investigations DPR' portions of the DPR. This item will provide for work on water supply, project lands, the recommended plan, agricultural economics and others. This effort is in connection with the writing of chapters in the DPR.

- Prepare Draft DPR - Continue with the preparation of DDPR chapters, initiate the review and initial revision of the DDPR chapters. Also prepare a draft of the distribution list for the Draft DPR.

- Financial Analysis - Continue work on determining the extent of economic studies, project lands, project water supply, project costs, and project benefits for the SFN System.

- Planning Agency Coordination

  - On March 15, 1995 the Strawberry Water Users Association will hold a Board Meeting to conduct monthly business and discuss and coordinate ongoing SFN System activities.

  - On March 22, 1995 the East Juab County Water Conservancy District Board Meeting will be held. Monthly District business will be conducted and an update on the SFN System will be provided.

Task B3 - Predesign

- Aerial Mapping - Initiate the aerial mapping for the main conveyance facility.

Task E0 - NEPA Compliance

- The Hydrology Technical Report will be revised and resubmitted for formal Team review following the Project Manager's approval.

- The Wildlife Resources and Wetlands Technical Reports will be completed and submitted to the Project Manager for review prior to formal submittal to the District.

- Chapter 1 of the EIS will be revised to reflect the Team's comments.

- Drafts of the resource specialists' annotated outlines will be submitted for review and approval.

- A Class I Cultural Resources survey of the Utah Lake area will be conducted as will a Class III survey of the Mona pumping plant site. The Utah Lake information will be incorporated into the Utah Lake Technical Report.

Task Z9 - Project Management/Administration

- Status the detailed project schedule for the SFN System to reflect work performed during March 1995.
- Continue with work on the 1995/96 Work Plan and budgets.
- Prepare weekly and monthly reports.

WATER MANAGEMENT IMPROVEMENT STUDIES
ECKHOFF, WATSON AND PREATOR ENGINEERING
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

The work performed on the Water Management Improvement Studies by the Eckhoff, Watson and Preator Team during February included:

- Closed out public comment period for the Central Valley Water Reclamation Facility Water Reuse Project EIS. Began preparing associated Scoping Summary Report.
- Incorporated a list of changes/revisions recommended for the Water Conservation Credit Program, based upon the experience of working with the program over the past year. The Second Edition of the Credit Program is expected to be available for distribution by early April.
- Water Management Improvement Studies Coordination Committee meeting held on February 9. Issues discussed included: Second Edition of the Credit Program, Study of Coordinated Operations Comprehensive List of Opportunities, and the status of the Utah Water Conservation Advisory Board's recommendations.
- Continued work on the District-wide Study of Coordinated Operations. Meetings were held with representatives from Salt Lake City, Metropolitan Water District of Salt Lake City, and Salt Lake County Water Conservancy District to gather feedback on the Comprehensive List of Coordinated Operations Opportunities. Based on comments received, and preliminary analysis of ideas, the list was narrowed down, selecting the most promising opportunities. An outline for the final report was prepared along with preliminary scoping for each of the chapters.
- Coordinated with the Department of Interior CUP Completion Act Office, on the contracts required for implementation of Credit Program projects. Draft contract and cooperative agreement were transmitted to Washington by the Program Coordinator's office for approval as to form.
- Prepared draft contracts between CUWCD and applicants for implementation of projects selected for funding during the 1994 prioritization.

- Assisted CUWCD with review of Applications to the Credit Program. This review determines which projects meet the initial requirements of the Credit Program. Consultations regarding the requirements of the Feasibility Study were held with five (5) applicants.

- Assisted CUWCD with a review of projects that have submitted Feasibility Studies to the Credit Program. The review was conducted to determine which, if any, of the projects should be selected to proceed with NEPA compliance.

PLANNED ACTIVITIES FOR MARCH

- Continue agreement preparation and negotiations with applicants for implementation of previously selected conservation measures.

- Complete the scoping activities for the CVWRF Water Reuse EIS These activities include preparation of the Scoping Summary. The summary outlines issues raised during scoping that could be addressed during the preparation of the EIS

- Distribute copies of the final Comprehensive List of Coordinated Operations to meeting participants. Hold meetings with river commissioners and state agency personnel as required to gather specific information necessary to evaluate the selected opportunities. Begin to write the draft report for submittal to the Secretary of the Interior.

- Make changes to the Credit Program and prepare the Second Edition.

- Coordinate with an environmental organization regarding a potential Public Education proposal to the Credit Program.

- Continue work with the Water Conservation Credit Program. As Applications and Feasibility Studies are received, they will be evaluated and comments returned to applicant agencies.

WATER PRICING POLICY STUDIES
RESOURCE MANAGEMENT INTERNATIONAL, INC
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

- In order to utilize the most current information available, further efforts on the Draft Final Report, and the subsequent Final Report, will be continued during the 1995-1996 Fiscal Year.

PLANNED ACTIVITIES FOR MARCH

- Project management and coordination services will be provided, as requested by the WMIS Project Manager.

WASHINGTON LAKE DAM RECONSTRUCTION
U.S. BUREAU OF RECLAMATION
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

- Winter shutdown continues. Construction activities are on hold until spring, when the contractor plans to finish the dam embankment.

PLANNED ACTIVITIES FOR MARCH

- Winter shutdown will continue.

LOST LAKE DAM RECONSTRUCTION
U.S. BUREAU OF RECLAMATION
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

- The USBR is proceeding with the design process.
- Prepared plans and specifications.
- Held a 90%-design review meeting at the end of the month, at the USBR offices in Provo.

PLANNED ACTIVITIES FOR MARCH

- Hold a final design review meeting on March 17.
- Final plans and specifications are scheduled to be available for the bidding process by the end of March.

MONK'S HOLLOW DAM PRE-DESIGN STUDIES
HARZA ENGINEERING COMPANY
FEBRUARY 1995

EXECUTIVE SUMMARY

FEBRUARY ACTIVITIES

- Work continued on the dam type selection. Layouts and quantities were completed for the arch dam, the embankment dam, and the rolier-compacted concrete (RCC) dam. Costs were completed for the arch dam and the embankment dam.
- Completed hydraulic design and preliminary layouts of the outlets and spillways for the embankment dam and the RCC dam.
- Definite project plans were developed for the spillways and outlet works for all three types of dam.

PLANNED ACTIVITIES FOR MARCH

- Complete work on the dam type selection.

Mr. HANSEN. I would have nothing more. Whoever. Enid?

Mrs. WALDHOLTZ. I guess I can go next. Chairman Myers, Mr. Bevill, Members of the committee, I appreciate the opportunity to come and talk to you for just a moment about what is so important in our home State of Utah.

The CUP has enjoyed strong bipartisan support from the Utah delegation over the years and I want you to know from this new Member that that support continues today. The CUP is on time, it is under budget, under the new rules that came about two-and-a-half years ago when Congress passed the Central Utah Project Completion Act, and we are very proud of the fact that we are showing—we are a project that shows that the States can administer these programs, is doing it, and we are doing it in a way that I think can allow the Members of this subcommittee to know that we are spending the dollars sent to our State wisely and well.

Come from Utah, you all look like easterners.

Mr. MYERS. Y'all?

Mrs. WALDHOLTZ. Y'all look like easterners. And it is sometimes hard, I know, for easterners to understand just what a project like this means to our State. Because I married an Easterner, and in the first couple of months after he moved to Utah, he turned to me and said, Enid, why does everybody in Utah have an obsession with water? Everybody is talking about it, everybody worries about it.

Mr. MYERS. Well, you don't drink anything else in Utah.

Mrs. WALDHOLTZ. Mr. Myers, I would say you aren't looking in the papers. We grow children in Utah, and Mr. Orton and I are trying to keep up our end of it. But we—my husband just looked at me, said why are you all obsessed with it? I said, honey, because there isn't any. And from that point forward, he has been a CUP supporter because he realizes how essential this is for our State to be able to continue to grow.

I appreciate as a citizen of Utah what you have done in the past, and I am here as one of its representatives to ask you to honor the administration's request to let us go ahead and get the money that we need to match what Utah has put forward and to allow us to meet our obligations under these various agreements on time.

Thank you.

[The statement of Mrs. Waldholtz follows:]

STATEMENT OF REPRESENTATIVE ENID G. WALDHOLTZ
BEFORE THE
HOUSE APPROPRIATIONS SUBCOMMITTEE
ON
ENERGY AND WATER
MARCH 29, 1995
2362 RAYBURN HOUSE OFFICE BUILDING

Chairman Myers, Rep. Bevill and members of the Subcommittee,

Thank you for hearing from Utahns today in support of this year's funding for the Central Utah Project (CUP). Even though I am new to Congress, I am not new to the CUP. As deputy chief of staff to the Governor of Utah, I became aware of the importance of CUP to the continued economic vitality and growth of our state. Over seventy percent of the funding for the Central Utah Water Conservancy District and a higher percent of the developed CUP drinking water is associated with Salt Lake County, which I represent along with Rep. Orton. The CUP has enjoyed strong bipartisan support from the Utah Congressional delegation for decades and I want this subcommittee to know that this support continues today.

Two and a half years ago, Congress passed the Central Utah Project Completion Act or CUPCA, which was one of Congress' earliest recognitions that sometimes states can be better administrators than Washington. That Act transferred to the State of Utah, from the federal Bureau of Reclamation, the responsibility to complete construction of CUP. Utahns thought, and Congress agreed, that we could finish the project cheaper and faster. I am pleased to report that we are doing it. With the cooperative agreements that we have reached with the Secretary of the Interior, we forged a new partnership in which Utahns are paying 1/3 of the costs to finish this project. Our planning and construction activities on the project have been reviewed by the Secretary of the Interior's Office and we are both on schedule and under budget. As this Congress continues to shift functions of power away from the federal government to state and local governments, we only need to look as far as the Central Utah Project to find an example of how this localization is working.

Mr. Chairman, for fiscal year 1996, the Administration has requested $44.139 million for CUP. This figure was arrived at by the Department and OMB working closely with the Central Utah Water Conservancy District to make sure this money could be spent without waste or delay. We support this figure and ask the Subcommittee to include in this year's bill the full amount requested by Interior. Because the CUP Completion Act placed tight timeframes and deadlines upon the district to insure timely performance, it is critically important for the federal government to keep up with the state's contributions so that these obligations may be met. Mr. Chairman, I fully recognize our budget constraints, and I know we are all looking for places to reduce spending. But this project has already tightened its belt, through CUPCA, and water for the West isn't a luxury item, or even an optional item. It's our lifeblood. Again, Mr. Chairman, I appreciate this opportunity to appear before you today. Thank You.

CENTRAL UTAH WATER CONSERVANCY DISTRICT
CUP Completion

PRESIDENT'S BUDGET (Subject to change by CONGRESS)
FY96 Budget Request **(Rev.02/06/95)**

			FEDERAL SHARE	LOCAL MATCH (%)	LOCAL SHARE	TOTAL FUNDS
	Total Amount		$44,139,000		$15,379,000	$59,518,000
PL 94-423 UINTAH UNIT & PL 92-370 UPALCO UNIT			$229,000		$123,000	$352,000
Sec. 201	(c)	Uintah Unit	$147,000	35%	$79,000	$226,000
Sec. 201	(c)	Upalco Unit	$82,000	35%	$44,000	$126,000
	Subtotal Amount {PL 102-575}		$42,664,000		$15,238,000	$57,902,000
TITLE II - CENTRAL UTAH PROJECT CONSTRUCTION						
Sec. 202	(a) (1)	Spanish Fork Canyon-Nephi Irrigation	$2,400,000	35%	$1,292,000	$3,692,000
	(a) (2)	Groundwater Program	$1,000,000	50%	$1,000,000	$2,000,000
	(a) (3)	Wasatch County Water Efficiency Study	$0	50%	$0	$0
	(a) (3)	Wasatch County Water Efficiency Project	$2,146,000	35%	$1,156,000	$3,302,000
	(a) (4)	Utah Lake Salinity Control Study	$0	50%	$0	$0
	(a) (5)	Provo River Studies	$0	0%	$0	$0
	(a) (6)	Diamond Fork Construction	$9,815,000	35%	$1,441,000	$11,256,000
Sec. 203	(a)	Uinta Basin Replacement Projects	$737,000	35%	$398,000	$1,135,000
	(a) (5)	Duchesne/Strawberry Diversion Structures	$500,000		$0	$500,000
Sec. 207	(e) (1)	Water Management Improvements	$78,000	50%	$78,000	$156,000
	(e) (2)	Conservation Measures	$2,000,000	35%	$1,077,000	$3,077,000
	Subtotal: Sections 202-212		$18,676,000		$6,442,000	$25,118,000
Sec. 201	(a) (1)	$214,352,000 Funds: CUP Mitigation	$2,832,000	0%	$0	$2,832,000
TITLE III - FISH, WILDLIFE AND RECREATION MITIGATION						
	Various fish & wildlife project schedules		$18,156,000	0%	$0	$18,156,000
TITLE IV - UTAH RECLAMATION MITIGATION ACCOUNT						
Sec. 401		Findings & Purpose				
Sec. 402	(b) (1)	State of Utah Contribution			$3,000,000	$3,000,000
	(b) (2)	Federal Contributions	$5,000,000			$5,000,000
	(b) (3) (A)	District Contributions			$796,000	$796,000
	(b) (3) (B)	Secretary of Energy WAPA Power Contribution			$5,000,000	$5,000,000
	Subtotal: Title IV		$5,000,000		$8,796,000	$13,796,000
	DOI Program Oversight & Administration					
	Sec. 201 (c)	Uintah Unit	$22,300	35%	$12,000	$34,300
	Sec. 201 (c)	Upalco Unit	$11,200	35%	$6,000	$17,200
	Sec. 202-212		$403,500			$403,500
	Titles III & IV		$425,300			$425,300
	Titles V		$383,700			$383,700
	Subtotal: DOI		$1,246,000		$18,000	$1,264,000
	FUNDING DISTRIBUTION					
		CUWCD	$17,905,000		$5,565,000	$23,470,000
		DWRe (thru CUWCD)	$1,000,000		$1,000,000	$2,000,000
		URMCC	$23,988,000		$8,796,000	$32,784,000
		DOI	$1,246,000		$18,000	$1,264,000
		TOTALS	$44,139,000		$15,379,000	$59,518,000
	FUNDING SOURCE					
		FEDERAL	$44,139,000			$44,139,000
		WAPA	$0		$5,000,000	$5,000,000
		CUWCD	$0		$5,302,000	$5,302,000
		APPLICANTS - WATER CONSERVATION	$0		$1,077,000	$1,077,000
		DWRe	$0		$1,000,000	$1,000,000
		State of Utah	$0		$3,000,000	$3,000,000
		TOTALS	$44,139,000		$15,379,000	$59,518,000

▨ 35 percent of the costs allocated to irrigation beyond the ability of irrigators to repay

2/08/95

FISCAL YEAR 1996 REQUEST
TITLE III

	Authorized Ceiling	DOI FY 1996 Request
CONSERVATION PROJECTS - Section 314(c)		$ 485,000 1/
DIAMOND FORK FISH AND WILDLIFE:		
Section 307 Fisheries Acquisition, Rehabilitation & Enhancement		
307(6) Diamond Fork and Sixth Water	$ 1,000,000	$ 53,000
Section 309 Stream Access & Riparian Habitat Development		
309(a)(2) Diamond Fork & Sixth Water Creek	250,000	23,000
Subtotal	$ 1,250,000	$ 76,000
PROVO RIVER/UTAH LAKE FISH AND WILDLIFE:		
Section 302(a) Utah Lake Water Right Purchase	$15,000,000	$ 2,860,000
302(c) Diversion Structures: Murdock to Utah Lake	4,000,000	400,000
Section 303(b)(4)(A) Daniels Creek Water Leases	500,000	0
303(b)(4)(B) Daniels Creek Replacement Pipeline	10,000,000	500,000
303(e) Mitigation of Excessive Flows/Provo River	500,000	204,400
Section 306(c)(9) Utah Lake Wetlands Preserve	16,690,000	3,200,000
Section 307 Fisheries Acquisition, Rehabilitation & Enhancement		
307(1) Fish Habitat Restoration: Jordanelle-Deer Cr.	750,000	56,000
307(5) Warm Water Fishery at Utah Lake	1,000,000	105,000
Section 308(c) Stabilization of Upper Provo Lakes	5,000,000	910,000
Section 309(a)(1) Provo River Riparian Habitat Development	750,000	0
Section 311(a) Jordan River Fish Habitat Improvements	1,150,000	162,400
311(b) Jordan River Riparian Habitat Rehabilitation	750,000	124,900
311(c) Jordan River Wetlands Acquisition	7,000,000	1,100,000
311(d)(1) Jordan River Rec. Facilities (Salt Lake County)	500,000	58,200
311(d)(2) Jordan River Rec. Facilities (Utah/Wasatch Co.)	500,000	29,100
311(e) Provo River Riparian Habitat Acquisition	1,000,000	140,000
Section 312(a) Utah Lake Recreation Improvements	2,000,000	0
Section 315 Municipal and Industry System:		
Jordanelle Big Game Fence & Development	226,000	0
Angler Access - Jordanelle to Deer Creek	1,050,000	780,000
Jordanelle Wetlands Acquisition	900,000	0
Subtotal	$69,226,000	$10,630,000
DUCHESNE/STRAWBERRY RIVERS FISH AND WILDLIFE:		
Section 307(3) Fisheries in Tributaries of Strawberry Res.	1,000,000	$ 168,000
307(4) Strawberry Reservoir Fish Mgmt/Development	1,500,000	166,300
307(8) Strawberry River Drainage Fisheries	2,500,000	0
Section 309(b) Strawberry Collection System Impact Study	400,000	54,600
Section 315 Strawberry Collection System:		
Angler Access	2,700,000	480,000
Fish Habitat Improvements	3,990,000	100,000
Riparian Habitat Rehabilitation	3,000,000	80,100
Duchesne Canal Rehabilitation:		
Develop 782 Acres Along Duchesne River	160,000	0
Subtotal	$15,250,000	$ 1,049,000

CRSP & STATEWIDE FISH, WILDLIFE, AND RECREATION:

Section	305(a)	Acquisition of Rangelands	$ 1,300,000	$ 280,000
	305(b)	Big Game Crossings & Wildlife Escape Ramps	750,000	15,000
Section	306(a)	Wetlands Around the Great Salt Lake	14,000,000	1,035,400
	306(b)(2)	Sensitive Nongame Wildlife Species & Habitat	750,000	68,100
	306(b)(4)	Sensitive Plant Species and Ecosystems	750,000	68,100
Section	307(2)	Fish Habitat Restoration: Streams in Utah	4,000,000	100,800
	307(7)	Native Cutthroat Trout Populations	475,000	50,400
Section	309(a)(3)	Watershed Stabilization & Road Closures	350,000	0
	309(a)(4)	Additional Recreation & Angler Accesses	8,500,000	416,000
	312(b)	Additional Recreational Improvements	750,000	100,000
Section	313(a)	CRSP Habitat Improvements	1,125,000	65,500
	313(b)	CRSP Small Dams & Watershed Improvement	4,000,000	504,000
	313(c)	CRSP Fish Hatchery Production	22,800,000	1,212,700
		Subtotal	$59,550,000	$ 3,916,000
		GRAND TOTAL	$145,316,000	$16,156,000

1/ The language in Section 314(c) of the Act requires the Secretary to utilize 3.0 percent of the $145,316,000, or $4,359,480, to fulfill Sections 314(d) and 314(e).

Mr. MYERS. Thank you. Bill.

Mr. ORTON. Thank you, Chairman Myers, and Ranking Member Bevill. I might just report to the Ranking Member that your favorite constituent, my wife, has given birth to a young son, 8 pounds, 7 ounces.

Mr. BEVILL. Congratulations.

Mr. MYERS. It can't be the water.

Mr. ORTON. And to show you——

Mr. BEVILL. They are getting along okay, I hope.

Mr. ORTON. Very well, thank you.

To show you how important and critical the Central Utah project is, I left my son and wife in the hospital to come over and testify before the subcommittee for this appropriation request.

Mr. BEVILL. I am certainly impressed with that.

Mr. ORTON. Well, thank you. We are asking, as Rep. Hansen mentioned, for the 44.1 million appropriation for the Central Utah project, which is identical to the amount in the President's budget. It was funded, as you know, last year with 40.2 million, the same amount that was in the President's budget. It was virtually noncontroversial. I am in hopes that it will be again this year.

And while I am not a hundred years old, I can tell you that shortly after I was born, Congress began this project, and has been funding it ever since. It is about time we complete it. And as you also know in the legislation that we passed in the 102d Congress, we now have to begin construction within five years, or the authorization terminates.

And so we are in a situation where we have to fund it in order to complete it, and if we do not, it would be a shame to have spent almost 50 years and over a billion dollars for something that is not completed.

So I thank you very much for the support that you have given us in the past. I know that the Chairman and the Ranking Member have both been to Utah, have seen the project, have been supporters of it in the past, for which we on both sides of the aisle in Utah thank you very much.

And I would like to hear from the other folks on the panel, but I might just mention to you, Mr. Chairman, I do have one other small request on an item which has been authorized last year. And if I might, after we conclude the discussion on Central Utah project, I would like to introduce to you a councilman from Provo, Utah, to talk just for a minute about the other project.

[The statement of Mr. Orton follows:]

TESTIMONY OF REP. BILL ORTON

before the

ENERGY & WATER APPROPRIATIONS SUBCOMMITTEE

regarding the

FY 1996 APPROPRIATION FOR THE CENTRAL UTAH PROJECT

MARCH 29, 1995

Thank you Mr. Chairman, Mr. Bevill and distinguished members of the Energy and Water Appropriations Subcommittee for the opportunity to present testimony in support of the Administration's FY 1996 Appropriations request for the Central Utah Project (CUP). I am pleased to have the opportunity to introduce Mr. Gary Palmer, Chairman of the Board of Directors for the Central Utah Water Conservancy District and his colleagues from the Central Utah Water Conservancy District to you today.

As you know, since the Central Utah Project Completion Act was passed in the 102nd Congress, the Central Utah Water Conservancy District (CUWCD) has been given the additional responsibilities if overseeing planning, design, environmental compliance, and construction activities of the CUP. Therefore, I am here today to urge the subcommittee to favorably consider the President's budget request of $44.1 million for the programs of the CUPCA.

In the short span since the CUPCA has been signed into law, the CUWCD has been very effective in being able to negotiate three very significant agreements with the Department of the Interior. As you know, the CUPCA provides for completion of the Central Utah Project by the CUWCD, but the CUPCA also authorizes funding for fish, wildlife, and recreation mitigation and conservation. The FY 1996 request for current budget authority is $44.1 million, of which $25.6 million will be expended from this account and $18.5 million will be transferred to the Utah Reclamation Mitigation and Conservation Account for use by the Utah Reclamation Mitigation and Conservation Commission.

As you know, Mr. Chairman, CUPCA contains several project authorizations which expire within five years of enactment unless they are authorized for construction and the funding has been appropriated. Without this current appropriation request being funded, it could seriously hamper the CUWCD's ability to meet this five year deadline.

Again, I would like to thank the subcommittee for allowing me the opportunity to testify on behalf of this very worthwhile on-going project.

Mr. MYERS. Why don't you go ahead and do it right now.

Mr. ORTON. Why don't we hear from the other folks on the Central Utah project, then we will come back to them.

Mr. PALMER. Mr. Chairman, my name is Gary Palmer, chairman of the board. Appreciate being here today. I would like to introduce Ron McKee, our vice chairman, Rob Weyher and Tim Doxey, who are some of our key directors, and also our general manager, Don Christiansen. I know you have seen Don all the time. We know much talk means little money, so we will move right through the program.

And we are again pleased to be here in our request for 44 million. We have had many months of discussion with the budget officials to arrive at this amount. We are now in the fourth year of managing this project, one year actually before the legislation was passed, because we knew that we could do it. We are very high tech and have very sophisticated monitoring program which helps us to keep track of the project, and we have a time frame that of course we need to adhere to.

We send monthly reports to our board of directors and to the Office of the Interior. Our contractors are providing us with the deliverables on time, and especially under budget. We have made many important decisions concerning the project that will reduce costs, reflect the desires of the citizens of the State when we are here before we inform you folks that we were negotiating with Millard County, who wanted to withdraw from the district, that is now happened.

We also have a written decision from the Fourth District Court in Utah granting Sevier County to withdraw from the district as well. These two counties make it infeasible to build the irrigation and drainage system that we had planned and so we have come up with a less costly—30 seconds, okay. And our board is driven to make this project feasible, to make it happen.

And having the name of Palmer, which is a golfing name, I want you to know that golf is just like life. Whether you are a good golfer or a bad golfer, you are still going to end up in a hole in the ground. And all we hope for is that we finish this project before we end up in the ground.

Thank you very much.

[The statement of Mr. Palmer follows:]

STATEMENT OF GARY PALMER, CHAIRMAN OF THE BOARD OF THE CENTRAL UTAH WATER CONSERVANCY DISTRICT BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER

MARCH 29, 1995

Chairman Myers, Congressman Bevill and members of the Subcommittee,

Once again I am pleased to appear before you today with my fellow board members, Vice Chairman Ron McKee, Rob Weyher and Tim Doxey. We are also accompanied by the District's General Manager, Don Christiansen with whom I believe you are acquainted. Based upon my past experiences in testifying before this subcommittee, I know that the amount of money we get is in inverse proportion to the amount of time we take. So I will do as you have suggested and will insert my statement into the hearing record and will briefly summarize our request.

FISCAL YEAR 1996 REQUEST

We are pleased that the Administration has included in it's budget request a total of $44,139,000 for the Central Utah Project for fiscal year 1996. We support this figure which was arrived at after months of discussions with the Department's budget officials and with the OMB. This request represents the minimum amount which the district can spend and still maintain the optimum completion schedule required to avoid delays and cost overruns.

PROJECT MANAGEMENT

The Central Utah Water Conservancy District is now in its fourth year of managing the completion of the Central Utah Project. As a district, we actually began working to assume these responsibilities from the Bureau of Reclamation one year before the CUP Completion Act became law in October of 1992. This preparation is paying off.

The district has implemented a sophisticated computerized monitoring program which allows us to track month to month the expenditures under each of the separate sections of the CUP Completion Act and compare those expenditures with numerous milestones which must be reached if we are to complete this project in the amount of time Congress gave us to do so. Each month the district sends a copy of this analysis as well as a written description of the progress being made on our various programs to each member of the Board of Directors and to the Office of the Secretary of the Interior whose staff is responsible to monitor our progress. A copy of last month's Executive Summary of this report is included with my testimony. It shows that our contractors are providing us with the deliverables on time and under budget.

SPANISH FORK CANYON-NEPHI IRRIGATION

The Central Utah Board made some difficult and important decisions concerning the project which will reduce costs and reflects the desires of the citizens of the state. After months of negotiations, the Board negotiated with Millard County for it to withdraw from the district and from the project. We are presently awaiting a written decision from a Utah district judge granting a petition from Sevier County to withdraw from the district as well. The loss of these two counties from the district makes it infeasible to build the irrigation and drainage system into the Sevier river drainage. Hence, the Board has elected to abandon that feature of the project in favor of a less costly alternative which will deliver water to a more proximate area in the Utah Lake Drainage basin. This alternative was authorized in the CUP Completion Act and the district and its contractor is involved in planning and NEPA compliance activities associated with this Spanish Fork Canyon-Nephi Irrigation System alternative. The FY 96 budget requests federal funding in the amount of $2.4 million for this activity.

UINTAH BASIN REPLACEMENT PROJECTS

Just last month the district's Board selected the preferred alternative for the Uintah Basin Replacement Projects. The alternative which was approved is smaller and less costly than other alternatives which were considered and it has the support of the Secretary's representative and Ute Indian Tribe whose assistance and continued cooperation will be critical to the successful construction of this project. There is just under $1 million requested to pursue the NEPA compliance for this preferred alternative in FY 96.

DIAMOND FORK SYSTEM CONSTRUCTION

The district has stepped into high gear in developing preliminary design data for the Diamond Fork System after the Secretary of the Interior approved a Record of Decision for the Diamond Fork EIS just last month. On February 15th we began final design of the Diamond Fork Pipeline and road rehabilitation work associated with the project. Road alignments are continuing this month and we have requested $9.815 million for next fiscal year to begin actual construction.

WATER MANAGEMENT IMPROVEMENT STUDIES

The district and it's contractor are working hard to bring to reality the goal of water conservation on CUP. We are also proceeding to assist and evaluate a number of feasibility studies for additional water conservation projects across the district.

Just over $2 million has been provided in the budget request for our ongoing water conservation program activities.

WASATCH COUNTY WATER EFFICIENCY PROJECT

The district and the Department have been working closely to provide for the completion and submittal to the Secretary of a feasibility study for this multifaceted irrigation, water conservation and fish and wildlife enhancement project. A preferred alternative has been identified which includes the delivery of a Daniel's Creek replacement water supply which will allow the district to acquire 4,500 acre feet of water rights for stream restoration in the upper Strawberry river. It is expected that this feasibility work will be completed with this year's funding request of $2,146,000.

The district is continuing to pursue several other studies and projects which include the Utah Lake Salinity Control Study, a conjunctive use groundwater study, restoration of diversion works on the Duchesne and Strawberry rivers and efforts to restore and enhance flows and riparian habitat along the Provo River.

UTAH RECLAMATION MITIGATION AND CONSERVATION COMMISSION

This past year the President completed the appointments to the Mitigation Commission which has the responsibility to provide the fish and wildlife mitigation for construction of CUP. As a board we have appointed our General Manager, Don Christiansen to serve as the district's representative on the Commission. We are pleased to have accompanying us today several of the other commissioners who will speak to the budget request for title III of the Completion Act. We at the district appreciate the excellent working relationship we have developed with the Commission and its staff. The Commission has hired several excellent professionals who are doing an outstanding job with the Commission's responsibilities. The district wholeheartedly endorses the request of $16,156,000 for title III activities in addition to the $5 million which has been requested as a power beneficiary contribution to the Utah Reclamation Mitigation Account trust fund under title IV. The State of Utah and the district will be contributing $3,796,000 into this trust account for FY 96 in support of the goals of fish and wildlife enhancement.

Mr. Chairman, as you can determine from this statement there is a lot that is going on at our district. We have assembled a hard working staff of professionals who are doing an excellent job in fulfilling the duties and responsibilities assigned to the district in Public Law 102-575. We believe in ourselves and we hope you will continue to have trust in our ability to accomplish the job Congress asked us to do. Thank you.

Mr. MYERS. Thank you.

Mr. PALMER. We would like to turn the time to Wayne Owens. You have 10 seconds, Wayne.

Mr. MYERS. No, he saved him a little bit more than that. Congressional courtesy, you know, we protect our own.

Mr. OWENS. Mr. Chairman, your comments about our drinking habits in Utah and the surplus of children and the scarcity of water recalls the old comment that in Utah, God provided enough whiskey for everybody to drink, but only enough water to fight over.

You might say there is a sense of familiarity and a sense of disorientation here today. Mr. Bevill has been sitting in your seat many years, and you have been sitting in his. And the last time I was here, I was sitting in Ms. Waldholtz'. But it is familiar territory, and I am delighted to be here.

I just wanted to say that I am here in my capacity——

Mr. MYERS. Good to have you back.

Mr. OWENS [continuing]. Thank you very much. As chairman of the Utah Mitigation and Reclamation and Conservation Commission. This Commission was set up by the Completion Act, Central Utah Project Completion Act, which we passed two-and-a-half years ago. Don Christiansen, who is general manager of the CUP, is commissioner along with me, and Mr. Bob Valentine, to my right, is also a commissioner. Michael Weland is executive director, he is here as well.

I just wanted to say that this commission was set up by Congress to spend the mitigation money to repair for the damages done by the Central Utah project. You two gentlemen were strong supporters of this legislation. The Department of Interior under the very able Ron Johnston have been managing this project, pending the long time before we got appointed. We have only been constituted about six months.

The projects are going forward in spending these resources in a very proper and satisfactory way to perform these mitigation and repair functions and we are very grateful for your support. We will support—we will submit for the record, if we may, more complex and detailed information, and we appreciate very much the chance to testify and your strong support.

[The statement of Mr. Owens follows:]

STATEMENT OF WAYNE OWENS, CHAIRMAN UTAH RECLAMATION MITIGATION AND CONSERVATION COMMISSION BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT OF THE HOUSE COMMITTEE ON APPROPRIATIONS

MARCH 29, 1995

Good afternoon, Mr. Chairman, Congressman Bevill, and members of the Subcommittee. I am Wayne Owens, Chairman of the Utah Reclamation Mitigation and Conservation Commission in Salt Lake City, Utah. With me today are the Commission Vice-Chairman, Mr. Don Christiansen, Commissioner Bob Valentine, Commissioner Robert Nelson, and Executive Director Michael Weland.

We deeply appreciate the opportunity to appear before you today in support of the President's FY 1996 budget for implementation of the Central Utah Project Completion Act. The Act authorized the Commission to plan and coordinate the fish, wildlife, and recreation mitigation for the Central Utah Project and other Federal reclamation projects in the State of Utah.

The Commission was appointed last year and began work immediately to implement projects specifically authorized in Fiscal Years 1994 and 1995. We have been successful in bringing the various Federal, State, and local agencies and interest groups involved in Federal reclamation mitigation together in a cooperative program to address the needs of fish, wildlife, and recreation resources.

Our major efforts to date have focused on wetland restoration along the Great Salt Lake. We have also started projects to stabilize the water levels in high mountain lakes to restore conditions for fisheries and recreation. Other ongoing projects include acquisition of lands to provide for fish and wildlife habitat and recreational access, and the rehabilitation of streams and native fish populations. We appreciate the support from the Subcommittee that has permitted this success.

This year we are also initiating development of a five-year mitigation and conservation plan that will provide for widespread public involvement from Federal and State agencies, local governments, landowners, and interest groups. This plan will establish a comprehensive program that will allow all of the cooperating natural resource management agencies to focus their mitigation efforts in the most effective manner possible.

The FY 1996 budget request provides $18.5 million to continue the planning and other mitigation activities necessary for completion of the Central Utah Project. In addition to the continuation of ongoing projects, the FY 1996 program will provide for establishment of the Utah Lake Wetlands Preserve, which will provide fish and wildlife habitat and preserve water quality for both consumptive and recreational uses. Other authorized projects will restore flows and riparian habitats in the Provo River basin, acquire wetlands along the Jordan River, and improve fish hatchery production.

Mr. Chairman, we are pleased with the progress we have made and hope we will have your continued support in carrying out our mission. Thank you.

WEDNESDAY, MARCH 29, 1995.

PROVO CITY FLOOD CONTROL PROJECT, UTAH

WITNESSES

HON. BILL ORTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

DAVID L. RAIL, COUNCIL MEMBER, CITY OF PROVO, UTAH

Mr. MYERS. Any of your members wish to have any brief statements? Bill, congratulations to you on the new arrival.

Mr. ORTON. Thank you very much.

Mr. MYERS. Will you bring the new one in next year, so we will have the newest? Next year when you testify next year——

Mrs. WALDHOLTZ. I will bring the baby, if it will help.

Mr. ORTON. We will bring hers and mine, if that will get the funding.

Mr. MYERS. You could have brought yours this year. She can't bring—well, she has got hers.

Mr. BEVILL. Jim, I think she and Bill both ought to bring.

Mr. WEYHER. I brought my children. I will leave you my son.

Mr. MYERS. Would they stand up? Would you introduce them for the record?

Mr. WEYHER. Well, sure. This is Mercedes Weyher, my daughter, and my son, Doug Weyher. And this is their first trip to Washington.

Mr. MYERS. We are pleased to have them. We often comment about this committee, we always welcome young people. Thank you for taking an interest in your government. Because the things we do or don't do will affect you a lot longer than it will some of us old folks. So we are deeply concerned. We are all parents and grandparents, some even great grandparents, Tom.

Mr. BEVILL. I am sitting over here minding my business.

Mr. MYERS. He is a little older than I am, not that much.

Mr. ORTON. Mr. Chairman, if I might ask Councilman Dave Rail to come up and join me here for just a moment, and explain the additional request we have. It is a very small request. I am requesting $600,000 for an Army Corps of Engineers reconnaissance study.

The Public Works Committee approved this study and survey in the last Congress. Provo City has experienced very severe floods in the past, from 1982 to 1984, which cost millions of dollars in repair. While flood control projects were addressed at that point in time, there are additional considerations.

The city has drafted a master plan to deal with the threat of flooding. That master plan calls for $30 million in capital improvements, most of which deal with a drainage problem inside the city because of the urban area. However, there is $9 million of capital improvements necessary to deal specifically with snow runoff from the national Forest Service lands.

And so what we have asked and has been authorized is a study, a feasibility study by the Army Corps of Engineers and I would like to commend the city council in Provo for taking a proactive approach in trying to find a solution to the problem before the next problem hits.

And councilman Dave Rail from Provo City has been very outspoken in pushing this to the front and he should be commended for that. And I would also like him just to explain the reasons why Provo needs this funding for a reconnisannce study.

[The statement of Mr. Orton follows:]

TESTIMONY OF REP. ORTON

Regarding the

PROVO FLOOD CONTROL PROJECT

Before the

ENERGY & WATER APPROPRIATIONS SUBCOMMITTEE

MARCH 29, 1995

Thank you Mr. Chairman, Mr. Bevill, and distinguished members of the Energy and Water Appropriations Subcommittee for the opportunity to present testimony in support of a flood control project in Provo, Utah. At this time, I would like to request your support for a $600,000 appropriation in the FY 1996 Energy and Water Appropriations Act for a Reconnaissance Study to be carried out by the Army Corps of Engineers. However, first, I would like to introduce Provo City Council Member Dave Rail who will also present testimony in support of this very worthwhile project. Council Member Rail has spearheaded this effort on the local level and should be commended for his tireless efforts on behalf of the citizens of Provo.

As you may know, the Committee on Public Works approved a survey resolution in the 103rd Congress that requested the Secretary of the Army to review the report of the Chief Engineers on the Jordan River Basin to determine whether there is a federal interest in flood control damage reduction, environmental restoration and protection along streams draining into Utah Lake which is located directly west of the City of Provo. This funding was originally requested because of the severe flooding problems that have occurred in the recent past.

By way of background, the City of Provo was affected by severe flooding from 1982 through 1984 that resulted in significant damage to the community. Through the efforts of the Utah Congressional Delegation, Congress passed legislation in 1982 and 1983 directing the Army Corps of Engineers to construct dikes along Utah Lake and the Provo River to mitigate the severe flooding. While this flood control project addressed an immediate threat, there are no control measures in place to protect residential and commercial areas from potential flooding caused by snow melt runoff from the mountain range directly east and adjacent to the City of Provo.

In order to protect Provo from future flooding events, the City of Provo prepared a Master Plan that identified more than forty miles of pipes and channels needed, along with detention basins, inlet boxes, and related facilities. This capital improvement project will cost a total of $30 million. Provo has informed my office that part of this needed capital improvement project is due to a local drainage problem, which would not come under the Army Corps of Engineer's jurisdiction. However, Provo has identified $9 million in capital improvements needed due to snowmelt from the Uinta National Forest directly east of Provo, which is not a local drainage problem but is a flood control problem caused by the runoff from federal property. The remaining $21 million in flood control improvements are considered local flooding problems in which the Corps has traditionally not had an interest. Provo is committed to financing the $21 million in improvements by way of a special taxing district that was established in 1992. However, the remaining $9 million in improvements should clearly be the responsibility of the federal government since most of the problems are a direct result of the runoff from adjacent federal property.

As you can see, the City Council and the City of Provo should be commended for taking such a proactive position in hopes of preventing the devastating floods that have inundated Provo in the past. I also realize that the Administration has proposed a new policy of only approving Army Corps' flood control measures that have a "national" significance. However, I am hopeful that this Subcommittee will not support this shortsighted policy. All we are asking is that everyone takes responsibility, including the federal government, to help prevent the disastrous floods that plagued the City of Provo in the early 1980's.

Again, I would like to thank the subcommittee for allowing me the opportunity to address these urgently needed improvements.

Mr. MYERS. Mr. Rail, your prepared statement will be placed in the record, if you could summarize in about one minute we would appreciate it.

Mr. RAIL. I will take one minute's worth off.

Mr. MYERS. 600,000 is worth about a minute.

Mr. RAIL. I appreciate the opportunity to be here with you and especially to be with my good friend, Bill Orton, who has been very supportive of this particular project on behalf of Provo City. As he indicated to you, we have had problems in the past with flooding.

The Corps of Engineers has stepped in from time to time and has actually been authorized to dike up our river and have done a good job and that problem has been solved pretty much. The problem that we have now is, in addition to the storm drain that Mr. Orton mentioned to you, storm drain problems that we have, he also mentioned that we have about $9 million worth of projects that are directly related to snow melt coming out of the national forest property.

As I mentioned to our friend, Sandra Bennett, several weeks ago, I said we have got a minor problem. I said the problem is to move water from the mountains out to the lake, but we have got a City of 100,000 people in between that we have got that get that water through. So these are the problem we face.

One thing I wanted to mention to you from my statement was I realize that the administration has a proposed new policy that would not allow Federal funding of new Army Corps projects unless they are national in scope and affecting more than one State.

Mr. Chairman, I am hopeful that this subcommittee will not support that policy. Major flooding events do occur frequently in Provo and we would just like to be able to continue to work these and solve them and work through that. I appreciate very much the opportunity to testify before this committee and you have a copy of my written testimony.

[The statement of Mr. Rail follows:]

TESTIMONY

BY

COUNCILMEMBER DAVID L. RAIL

FOR THE CITY OF PROVO, UTAH

BEFORE THE

HOUSE APPROPRIATIONS SUBCOMMITTEE

ON

ENERGY AND WATER

PROVO FLOOD CONTROL PROJECT

March 29, 1995

Mr. Chairman, members of the Subcommittee, I would like to request your support for appropriating $600,000 in the FY 1996 Energy and Water Appropriations Bill for a Reconnaissance Phase Study in Provo, Utah.

Last September, the House Committee on Public Works and Transportation approved a survey resolution requesting the Secretary of the Army to review the report of the Chief of Engineers on the Jordan River Basin, to determine whether there is a federal interest in flood damage reduction, environmental restoration and protection along streams draining into Utah Lake near Provo, Utah. The survey resolution was requested since Provo has experienced significant flooding problems in the past, and wants to take corrective measures to negate the effect of future flooding disasters on the community.

From 1982 through 1984 Provo City was impacted by severe flooding which caused significant damage to the community. A state of emergency was declared in Utah County as well as Salt Lake County. The Army Corps of Engineers was called in at that time to construct dikes and levees. The Army Corps spent approximately $2 million to upgrade an existing dike adjacent to the Provo airport, and a new dike was constructed along the south side of Provo River from the Utah Lake State Park linking it with the airport dike. An additional dike was built along the north shore of Provo Bay to protect residential areas in the southwest section of the City. Congress specifically directed the Army Corps in 1983 to construct these flood control projects in Provo. However, Provo still spent $5 million in repairing damaged property and constructing emergency flood control projects, many of which were

temporary in nature. Most of the emergency flood control projects were related to runoff from Rock and Slate Canyons, which are part of federal lands owned by the U.S. Forest Service. Since Provo's annual budget at that time was only $15 million, providing $5 million was an enormous share for the City to finance.

As a result of this flooding disaster, Provo prepared a master plan which identified $30 million in flood control projects to be constructed, consisting of channels and pipes along with detention basins, inlet boxes, and related facilities. In an attempt to finance these improvements Provo created a Service District in 1992 that generates $500,000 a year for these capital improvements projects. However, at this rate of revenue generation it will take more than 50 years to fund the flood projects identified in the master plan. Provo critically needs another source of funding to finance this flood control project.

The flood control projects identified in the City's Master Plan are the next logical step in flood control for Provo, beyond the Utah Lake and Provo River Diking Project completed in cooperation with the Corps of Engineers in 1983 and 1984. Major elements of the capital improvement program are flood control projects required to handle snowmelt runoff from the canyons on federal lands immediately east of the City. Runoff from these canyons does not occur frequently, but when flooding does occur it can cause high flow quantities requiring large and expensive capital improvements. The flood control projects associated with canyon runoff have an estimated cost of $9 million. It is this portion of the flood control project for which the City of Provo is seeking involvement from the Army Corps of Engineers. The remaining $21 million in flood control improvements are considered local flooding problems in which the Corps has traditionally not had an interest. The City of Provo will finance the local flood control projects through the special taxing district established in 1992. As you can see, Provo is taking a proactive stance in preventing future flooding events from damaging our community. However, funding the entire project is beyond the local community's capabilities.

Last September, I met with representatives of the Planning Division of the U.S. Army Corps of Engineers in Washington to discuss the Corps' involvement in this flood control project. Representatives of the Corps had initially viewed the project as a stormwater project because of local drainage problems. It was clarified at this meeting that one-third of Provo's flooding problem comes from snowmelt from the Uinta Mountains. The Corps said that flooding caused by snowmelt from the mountains was clearly a flood control issue,that should have Corps involvement, as opposed to a local drainage problem which would not fall under the Corps' jurisdiction. Given this explanation the Corps representatives indicated that it was appropriate to obtain authorization in the Water Resources Development Act. Since this legislation did not pass Congress Provo obtained authorization through a Survey Resolution approved by the Committee on Public Works and Transportation, due to the efforts of Rep. Bill Orton.

I realize that the Administration has proposed a new policy that would not allow federal funding for new Army Corps flood control projects unless they are national in scope, or affecting more than one state. Mr. Chairman, I am hopeful that the Subcommittee will not support this policy. Major flooding events do not occur frequently in Provo, but when these events occur they can be massive in scope. A community the size of Provo, which has a population of approximately 90,000, cannot be expected to fund $30 million in flood control improvements entirely on our own. Provo has taken steps to largely finance flood control improvements in the City, but help is needed from the federal government for portions of the flooding that are not local in nature... especially since the major flooding events occur from lands owned by the federal government.

Mr. Chairman, I am hopeful that your Subcommittee will see fit to support funding an appropriation request of $600,000 for a Reconnaissance Phase Study in Provo, Utah. Thank you again for the opportunity to testify before your Subcommittee.

Mr. MYERS. Thank you very much for your testimony.

Mr. BEVILL. Mr. Chairman, I think that was the worst proposal I have ever heard.

Mr. ORTON. Not ours, but the administration's proposal for the Army Corps.

Mr. MYERS. We recognize that. The committee has already taken a position on that.

Mr. RAIL. Well, we hope you will stick with that.

Mr. ORTON. Thank you. Thank you very much.

WEDNESDAY, MARCH 29, 1995.

PORT ISSUES

WITNESSES

ALLEN RUMBAUGH, GENERAL MANAGER, PORT OF COSS BAY, OREGON

PENNY MENDENHALL, PORT MANAGER, PORT OF TOLEDO, OREGON

Mr. MYERS. Well, since the remainder of the program today is the Pacific Northwest, and our resident member here of the Pacific Northwest, Mr. Bunn will chair the committee the remainder of the day.

Mr. Bunn.

Mr. BUNN [presiding]. Thank you, Mr. Chair. And when my colleague from Utah says everybody looks eastern, she needed to look at least west for one of us. But I would like to ask Mr. Rumbaugh, Ms. Mendenhall and Mr. Calica if they would come forward. And we will have them go in that order. And Mr. Leavitt, I am sorry I missed your testimony. We can visit later. But I appreciate your being here.

Mr. MYERS. He has been recognized already, but he didn't get to testify. We cut him off before.

Mr. BUNN. Well, the one that I worked with the most, but at least I will hear what he has to say.

Mr. RUMBAUGH. Thank you, Mr. Chairman, Mr. Chairman, and Members of the committee.

Mr. MYERS. Three chairmen here.

Mr. RUMBAUGH. And Congressman Bevill as well.

Mr. MYERS. Once a chairman always a chairman, you know.

Mr. RUMBAUGH. That is my understanding, yes, sir.

For the record, I am Alan Rumbaugh, manager of the port of Coos Bay. Keith Leavitt has previously testified about a half hour ago, very eloquently about our concerns about the Coos Bay channel deepening project. I thought we had the saddest story, and after listening to the Ute Tribe in Utah, I am not sure. I can't equal their hundred-year record.

I can say that Congress authorized the study 12 years ago. We have diligently followed the process all the way along, met all of our financial commitments, including a half million dollars from our town, Coos Bay, and the State of Oregon, and now we are frustrated, of course, because although the House passed a WRDA bill last year, the Senate did not. And we aren't—we hope that our Federal partner will have the same commitment to this process we do.

And I have tried to come up with the words that would express our frustration, our concern. And I think part of it is that we have put a good portion of our money up and that we are committed to the project. And we know that this committee is committed and we certainly appreciate your help on that. We know that from the experience we had in Coos Bay, we also support changes that are being proposed in the overall Corps process, especially for the Lower Columbia River deepening. That is changes that will put a limit on the amount of cost placed on local sponsor, and give them more control.

We also on behalf of our fellow ports on the coast have concerns about the minimum dredge fleet, and especially about the removal of operations and maintenance dredging money from smaller ports. That includes ports of Toledo, ports like Siuslaw, where Wilbur Ternyik is, down to Brookings Harbor.

Without the money for maintenance dredging, and especially when combined with the recent proposed changes by the Coast Guard, in which they are removing safety aspects of coverage, that will devastate those communities, where the ports are the centerpieces of their economy. With that,.

Mr. Chairman, I will conclude my testimony and my more elaborate comments are in the record. Thank you for the opportunity.

[The statement of Rumbaugh follows:]

Testimony of
Allan Rumbaugh, General Manager
OREGON INTERNATIONAL PORT OF COOS BAY
125 Central Avenue, Suite 300 - PO Box 1215 • 503-267-7678
Before the
U.S. House of Representatives
Committee on Appropriations
SubCommittee on Energy & Water Development
The Honorable John Myers, Chairman
March 29, 1995

The Oregon International Port of Coos Bay appreciates the opportunity to present to the Committee our views on several appropriations issues of great importance to our state and region.

The Port of Coos Bay, the second largest port in the State of Oregon with over 4 million tons of commerce annually, includes two terminals owned by our public agency and 10 privately owned deep-draft terminals. Our port is an active member of the Pacific Northwest Waterways Association, and works diligently to promote improvements in transportation infrastructure that will benefit our state and national economies. We have a strong commitment to constructing a navigation project in Coos Bay whose study was authorized by Congress 12 years ago. We also add our support on several other issues important to us and the Pacific Northwest.

COOS BAY DEEP-DRAFT CHANNEL DEEPENING.

The 35-foot draft Coos Bay channel enables the efficient export of a variety of wood products, our traditional industry. More recently, the Port has begun diversifying, and now exports more than 300,000 tons per year of copper concentrate from Utah, and also imports nickel ore from New Caledonia that is trucked east 60 miles to the only operating nickel smelter in the United States. Draft limitations in the channel cause delays in vessel movements as vessels await proper tides. In 1986, the Port of Coos Bay and the Corps of Engineers began a feasibility study that was completed and approved in 1994, and which recommends the deepening of the Coos Bay channel by two more feet.

Along with other areas of the country, we were disappointed last year that a Water Resources Development Act for 1994 failed to pass in the Senate. We appreciate the Committee's previous support for this project, and ask the Committee to support the forthcoming authorization and to appropriate funding for the project at the earliest possible date.

Because WRDA 94 did not pass, the additional one-year delay in project construction adds another $1 million this year to the project cost and means another $2 million in lost annual benefits. These amounts may seem small at the national level, but they equal our Port agency's annual gross income from operations and taxes combined. These added delay costs would jeopardize our ability to continue with the project, were it not for the continuing commitment and funding from the State of Oregon.

From our local perspective, we feel a sense of frustration that our commitment to the federal water development process is not shared as strongly by our federal partner. Since a study was first authorized by Congress twelve years ago, we have dutifully followed the guidelines laid down by Congress to the letter, and have entered binding commitments with the Federal government for that purpose. We have shared equally with the Corps of Engineers in the cost of the $1,000,000 feasibility study, thanks primarily to funding support by the State of Oregon and its Economic Development Department. Now those twelve years of effort and our state and local financial investment are in jeopardy without the passage of a water resources bill.

We realize the difficult decisions that Congress must make as you continue the important job of reducing the federal budget deficit. As this Committee looks for ways to measure the value of programs that provide supportive federal funding for projects, we urge that at least two questions be asked:

> First, does the local area or state believe strongly enough in the project that it has committed to provide a significant share of funding for project costs?
>
> Second, after public funds are spent, will something of lasting value remain that will help catalyze private sector economic activity and investment?

In our view, navigation improvement projects through the Water Resources Development Act pass those tests handily. Projects such as the Coos Bay channel deepening and the lower Columbia River deepening have significant funding support from the State of Oregon. Moreover, by building the nation's infrastructure, these public projects will spur additional private sector business activity and economic growth.

COLUMBIA RIVER DEEP-DRAFT CHANNEL DEEPENING

The Columbia River channel is an economic engine that powers economic development throughout the Pacific Northwest, and its continued improvement is vital to enable it to meet the needs of global commerce. Based on our experiences with cost escalations in the early stages of our study, we have supported program changes that would protect local sponsors from excessive study cost increases, and we urge the Committee to support the funding request for the Corps of Engineers portion of this study.

MINIMUM DREDGE FLEET

We strongly support the continued presence of the Corps dredge fleet, and urge the Committee not to reduce the size of the Corps dredge fleet, or to cut back the days of service of these four Corps dredges. Our community places great value on partnerships between the public and private sectors as the best way of getting jobs done most effectively. Each sector brings to a given situation its own particular skills and experiential knowledge, and the combination produces something greater than each could do independently. As we see it, the public and private dredge fleets complement one another, and both are necessary to continue the efficient and timely dredging of the nation's ports.

Some of the dredging in Coos Bay is already performed satisfactorily by the private fleet through Corps of Engineers contracting. The Corps dredges complement private dredging by providing rapid response in emergencies when dangerous spot shoaling must be removed immediately, and it also adds to the total capacity of the nation's dredge fleet to meet all dredging requirements. Finally, the presence of a minimum dredge fleet promotes the competitive bidding process in an industry with very few firms, helping to ensure that the public receives the most value for its money.

OPERATIONS AND MAINTENANCE FOR NAVIGATION

Our port and its region, together with many smaller ports along the Oregon coast, are deeply troubled by recent proposals within the Administration to make drastic policy changes that would take operations and maintenance (O & M) dredging funds away from all but ports of "national significance." We urge the Committee to reject these proposals, and to provide full funding for O & M dredging for the Corps of Engineers.

For many communities, the port and its harbor are the centerpiece of the local economy. Removal of dredging funds would render many of these harbors unusable in a few years. Further, when combined with recently proposed cuts in public safety coverage by the U.S. Coast Guard, the effects will be devastating on many smaller communities and their ports. From our perspective, what should be "of national significance" is the maintenance of healthy and viable communities. In that sense, dredging smaller ports is as important and appropriate as dredging larger ports. Eliminating the program would provide great harm with no real cost savings, as other entitlement costs could climb.

CONCLUSION

We thank the Committee for the opportunity to offer testimony about projects and programs of vital interest to our state and region.

AER/s

Mr. BUNN. Thank you. Ms. Mendenhall.

Ms. MENDENHALL. I am going to get it right, Allen. Mr. Chairman, Mr. Chairman, and Mr. Chairman.

Mr. MYERS. Do you stutter?

Ms. MENDENHALL. I knew I was going to get it from somebody. The Port of Toledo Commission and myself would like to take this opportunity to thank the subcommittee for the support and allotment of funding last year for our dredging. Toledo is a timber-dependent community, and as a result of the downfall of the timber industry, it is quite depressed.

All ports are aware of the budgetary pressures under which the appropriations subcommittee and your colleagues must operate in, considering the spending needs of the Nation. Claims competing for a fair share of the fiscal year 1996 budget far exceed the reasonably can be provide—provided, excuse me.

Ports large or small are a valuable asset to any community. They have the capability to diversify, from water-related projects and promote and develop new businesses in the community. They also can contribute toward national and international trade. In addition, once the proposed projects are completed and become self-sufficient, ports would possibly be in a position to help relieve the government from the continued request of funding.

The Port would like to express support for maintaining the existing Corps of Engineer minimum dredge fleet, particularly the two hopper dredges, Yaquina and Essayons. The minimum dredge fleet ensures competition, helping to reduce higher dredging cost. The Port of Toledo comes before the subcommittee to request support for funding to complete the dredging of the Yaquina River and Depot Slough, the requested amount of 500,000, and also continued funding for the maintenance dredging the Corps of Engineers maintenance channel.

Funding for the planned dredging was not enough for the complete dredging project due to the constraints with wetlands. The dredge material must be taken out to the ocean for disposal. This is quite costly. Much of the allotted funds must be used for the transportation of the dredge material. I thank you for giving me the opportunity to address this committee.

Thank you very much.

Mr. BUNN. Thank you. And each of your prepared statements will be entered in the record, if you would like to summarize at all.

[The statement of Ms. Mendenhall follows:]

STATEMENT

Penny Mendenhall, Port Manager, Port of Toledo, Oregon
and

Oregon Coastal Ports Maintenance Dredging Committee,
Coastal Zone Management Association

before the
Senate Appropriations Subcommittee on Energy and Water Development
and the
House Appropriations Subcommittee on Energy and Water Development
on March 29, 1995

Supporting Continued Funding of the
Corps of Engineers' Civil Works Budget for
Operation and Maintenance (O & M) Dredging of the Oregon Coastal
Ports for Fiscal Year 1996

and supporting

Corps of Engineers' Continuing Authorities Program
Preserving the Corps of Engineers' Minimum Dredge Fleet

Mr. Chairman:

The Port of Toledo Commission and myself would like to take this opportunity to thank the subcommittee for support and the allotment of funds to accomplish partial dredging of the Yaquina River and Depot Slough.

The Yaquina River has not been dredged since 1969 whereas Depot Slough was dredged in 1981. The planned dredging has allowed the port to move forward on water dependent projects.

We, the Port of Toledo, represent the community of Toledo, Oregon, which is located six road miles and fourteen river miles east and up Yaquina River from Newport, Oregon. Toledo is a timber dependent community and, as a result of the downfall of the timber industry, is a depressed area.

All port are aware of the budgetary pressures under which the appropriations subcommittee, and your colleagues, must operate in considering the spending need of the nation. Claims competing for a fair share of the FY96 budget far exceed what reasonably can be provided.

Ports, large or small, are a valuable asset to any community. They have the capability to diversify from water related projects and promote and develop new businesses to their communities. Also, the can contribute toward national and international trade.

In addition, once the proposed projects are completed and become self-sufficient ports would be in the position to help relieve the government from the continued request for funding.

Ports are able to create jobs, enhance the economic base for their community, put displace workers back into the work force with higher paying jobs and health benefits. Also, they are instrumental in strengthening the family unit.

Oregon ports have voiced concerns on the importance of maintenance dredging for coastal ports as well as for the Columbia River. The Port of Toledo continues to support the federal operations and maintenance dredging program for Oregon ports. A continued O & M program ensures further economic growth of the coastal communities. The port values the subcommittee’s ongoing commitment to enhance local economies. The port applauds and supports the FY96 approval for the US Army Corps of Engineers (COE) Operation and Maintenance Programs.

The port would like to express support for maintaining the existing COE minimum dredge fleet, particularly the two hopper dredges, "Yaquina" and "Essayons," on the West coast. The minimum dredge fleet ensures competition, helping to reduce higher dredging costs.

The Port of Toledo comes before this subcommittee to request support for funding to complete the dredging of the Yaquina River and Depot Slough. Requested amount: $500,000 and also continued funding for the maintenance dredging the COE maintenance channel.

Funding for the Planned dredging was not enough for the complete dredging project due to the constraints with wetlands. The dredge material must be taken out to the ocean for disposal. This is costly. Much of the allotted funds must be used for the transporting of the dredge material.

In addition, I wish to convey to the subcommittee two other proposals that can be accomplished with the completion of the dredging of the Yaquina River and Depot Slough.

1. Construction of the only environmentally approved shipyard for the 185 foot vessels up to 1000 ton in the State of Oregon.

This facility will put approximately 200 displaced workers back on the work force, creating a payroll of approximately $6 million dollars. The Lumvig oat lift is built in Denmark which would introduce the central Oregon coast to international trade.

2. A 700 foot wharf extension for commercial, fishing and recreations vessels. This facility could accommodate commercial vessels delivering commerce up the river for Georgia Pacific and barge service with the railroad.

These projects will prove to be extremely beneficial for the community and surrounding areas by promoting new national and international businesses, creating approximately 250 jobs, enhancing the economy and generating a $7. million dollar payroll.

When dredging is complete the traffic that would utilize our facilities is overwhelming. With support of the subcommittee to authorize funding for this project, it would allow the Port of toledo to move forward, create jobs and enhance the economy of a depressed community.

I thank you for giving me the opportunity to address the subcommittee and present my project.

WEDNESDAY, MARCH 29, 1995.

COE BUDGET

WITNESS

NELSON WALLULATUM, CHIEF, WASCO TRIBE

Mr. BUNN. Mr. Wallulatum——

Mr. WALLULATUM. Wallulatum.

Mr. BUNN. I am sorry. Will be speaking for the Confederated Tribes of Warm Springs. Welcome.

Mr. WALLULATUM. Good afternoon, Mr. Chairman and Members of the committee. My name is Nelson Wallulatum. I am chief of the Wasco Tribe, and a member of the Tribal Council of the Confederated Tribes of the Warm Springs Reservation of Oregon. With me today is Delvis Heath, who is sitting back in the audience there, also a member of the tribal council, chief the of the Warm Springs Tribe.

We are here today to make the following request regarding the United States Army Corps of Engineers fiscal year 1996 budget to continue implementation of Public Law 100–581, the Columbia River Treaty Indian Fishing In–Lieu and Access Site Act of 1988.

One, we ask the committee's assistance in prompting the Corps to clear up issues on operation and maintenance responsibilities for the sites so that actual implementation of Public Law 100–581 can proceed.

Two, we ask that $600,000 be added to the Corps' construction budget in planning funds for newly acquired sites on the Bonneville Pool.

And three, we ask the committee's assistance in resolving the Corps' expectation to exceed the authorized funding maximum for purchase of the new Bonneville Pool sites.

The Columbia River Treaty Indian In–Lieu and Fishing Access Sites Act of 1988 is intended to fulfill a long-standing promise by the Federal Government to provide 400 acres of Indian fishing sites and access facilities along the reservoirs behind the Columbia River Federal hydropower projects. This promise goes back to the 1930s when Bonneville Dam was built, The first Federal project on the Columbia was being built.

The promise is to partially compensate for the traditional Indian fishing locations that were inundated by the construction of the dams. However, since that time, the Federal Government has only provided five sites totaling 40 acres, which today are seriously run down and overcrowded.

Since the Columbia River Treaty Indian In–Lieu and Fishing Sites Act was signed in 1988, its implementation has been very slow. To date, no fishing in-lieu or access sites have been rehabilitated or built. However, the Corps of Engineers is close to beginning construction to rehabilitate the first four sites, called the Phase I sites. Funds have already been appropriated for this purpose. However, the Corps has been deferring starting construction until it resolves questions regarding funding responsibilities for operation and maintenance of the sites.

Today, we understand that the Corps is close to an agreement with the Interior Department and the Bonneville Power Administration on how this issue can be settled. We want to express our appreciation for Assistant Secretary John Zirschky, whose persistence has been principal in moving this matter forward. We urge the committee to support a rapid resolution of this matter so actual construction can finally get underway.

The Treaty In–Lieu and Fishing Access Site Act also called for the purchase of private lands from willing sellers on the Bonneville Pool for development of six additional in-lieu sites. Congress last year appropriated $2 million, the full amount authorized for purchasing the six sites.

Appraisal of properties and the purchase of sites will begin this year. However, no money has been appropriated for facilities design and engineering work on the new sites once the land is purchased. Accordingly, we request that $600,000 be added to the Corps' construction budget, which we believe would be sufficient for design and engineering work on the acquired sites during fiscal year 1996.

Also, regarding the purchase of six new in-lieu sites on the Bonneville Pool, escalating land values and unforeseen Corps administrative costs now appear to render the $2 million authorized amount to be insufficient. The Corps of Engineers estimates that the total cost of fulfilling its statutory directive to purchase the six sites, including the Corps' administrative costs, could be $2.5 million. That is $500,000 over the authorized amount. We ask the committee to work with the Corps to see if this hurdle might be overcome in some manner, perhaps by asking that the Corps hold its administrative expenses to a minimum.

Mr. Chairman, that concludes my remarks.

Mr. BUNN. Thank you very much.

[The statement of Mr. Wallulatum follows:]

TESTIMONY OF THE
CONFEDERATED TRIBES OF THE WARM SPRINGS
RESERVATION OF OREGON
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE
FOR ENERGY AND WATER DEVELOPMENT
CONCERNING THE FY 1996 CORPS OF ENGINEERS BUDGET,
MARCH 29, 1995

Good afternoon Mr. Chairman and members of the Committee. My name is Nelson Wallulatum. I am Chief of the Wasco Tribe and a member of the Tribal Council of the Confederated Tribes of the Warm Springs Reservation of Oregon. With me today is Delvis Heath, Sr., Chief of the Warm Springs Tribe and also a member of the Warm Springs Tribal Council. We are here today to make the following requests regarding the U.S. Army Corps of Engineers FY 1996 budget to continue implementation of Public Law 100-581, the Columbia River Treaty Indian Fishing In-Lieu and Access Site Act of 1988:

1) We ask the Committee's assistance in prompting the Corps to clear up issues on operation and maintenance responsibilities for the sites so that actual implementation of P.L. 100-581 can proceed.

2) We ask that $600,000 be added to the Corps' construction budget in planning funds for newly acquired sites on the Bonneville Pool. And

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Since the Columbia River Treaty Indian In-Lieu and Fishing Access Site Act was signed in 1988, its implementation has been very slow. To date, no fishing in-lieu or access sites have been rehabilitated or built. However, the Corps of Engineers is close to beginning construction to rehabilitate the first four sites, called the Phase I sites. Funds have already been appropriated for this purpose. However, the Corps has been deferring starting construction until it resolves questions regarding funding responsibilities for operation and maintenance of the sites. Today, we understand that the Corps is close to an agreement with the Interior Department and the Bonneville Power Administration on how this issue can be settled. We want to express our appreciation for Assistant Secretary John Zirschky, whose persistence has been principal in moving this matter forward. We urge this Committee to support a rapid resolution of this matter so actual construction can finally get underway.

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Also, regarding the purchase of six new in-lieu sites on the Bonneville Pool, escalating land values and unforeseen Corps administrative costs now appear to render the $2 million authorized amount to be insufficient. The Corps of Engineers estimates that the total cost of fulfilling its statutory directive to purchase the six sites, including the Corps' administrative costs, could be $2.5 million. That is $500,000 over the authorized amount. We ask the Committee to work with the Corps to see if this hurdle might be overcome in some manner, perhaps by asking that the Corps hold its administrative expenses to a minimum.

Mr. Chairman, that concludes my remarks. Thank you very much.

WEDNESDAY, MARCH 29, 1995.

DEEPENING OF COLUMBIA RIVER AND COE HOPPER DREDGE FLEET

WITNESS

TOM DECKER, MANAGER, FEDERAL GOVERNMENT RELATIONS, PORT OF PORTLAND

Mr. BUNN. Mr. Decker, the Port of Portland, and Mr. Vaneslow, of Pacific Waterways Association, and Rob Halverson, Port of Newport. And if you would each go in that order. Again, your prepared statements will be entered in the record. And the pictures were great.

Mr. DECKER. Thank you, Mr. Chairman, Members of the subcommittee. Appreciate your time. The picture will help me get through this faster.

So my name is Tom Decker with the Port of Portland. I want to cover three paints very quickly today, try to get you back on your schedule. Point number one, we are here to express our support for the President's request for $900,000 for the continuation of the feasibility study for deepening the Columbia River Channel; secondly, we want to express our continuing strong support for the Corps' hopper dredge fleet; and finally, express our growing concern for the ability of our region to continue to meet the payments required for salmon recovery.

As I mentioned, I think the photograph will help me get through one point very quickly. That is the first R class vessel calling on Portland. That is not really the future anymore, that is the present and the small vessel in the rear is the past. If you look at the photograph carefully, you will see a green line along the waterline of the vessel in the foreground. That represents the 3 feet of channel deepening we need.

In the interest of time, I will just refer you to my prepared comments for some other justification for that project. The important point I would stress, however, is that we are, as any local sponsors, willing to meet our local obligation for funding this project.

We have seven Lower Columbia River ports that are strong supporters. You will hear from John Fratt, from the State of Washington, later. You heard the support from the State of Oregon. The State of Washington is also a financial supporter of this project at the feasibility stage. We are willing partners and we look to you for leadership.

My message of partnership also extends to the comments I would make on the Corps' hopper dredge fleet. The ports in the Northwest, other ports around the country and our shipping customers, really pay for that service through the fees charged on cargo for the Harbor Maintenance Fee program.

As customers of the Corps' hopper dredge fleet, there are three points I would want to stress, three things that we really look to them to provide: Safety and navigation being the first point; number two, timely service to make sure that we have operating depths we need in our channels; and three, economical and cost-effective service.

Let me, in the interest of time, turn to that last point and stress that again.

By economical and cost-effective service, what I am suggesting is that we need to tell you frankly we are skeptical that there is enough competition in the private sector in the hopper dredge industry. So as a consequence, as customers and as I think Congress looks at this situation, we want to assure ourselves of robust price competition in the marketplace, and frankly, we believe the Corps provides that at this point.

Without that kind of cost competition, we are concerned that customers, ports and shippers, and Congress, would find themselves paying more for this service.

Let me close by thanking this subcommittee for your past help on the channel deepening project. If you recall, your committee and your Senate counterparts helped us with language a year ago to clarify the scope and the cost of that feasibility study and, frankly, enabled us to get the costs down from at one point being 16.1 million, to $6.1 million, the agreement we signed.

Without your leadership on this project, I am not sure where we would be today. So we do appreciate that help. It got us off to a good start. We look forward to continuing that.

Thank you.

[The statement of Mr. Decker follows:]

Port of Portland

Box 3529, Portland, Oregon 97208
503/231-5000

TESTIMONY BY TOM DECKER
PORT OF PORTLAND, OREGON
BEFORE THE ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE OF THE HOUSE APPROPRIATIONS COMMITTEE
WEDNESDAY, MARCH 29, 1995

Mr. Chairman and members of the Subcommittee:

My name is Tom Decker, manager of government relations for the Port of Portland. Ports on the lower Columbia River are thriving seaports with extensive bulk, breakbulk, auto, and container businesses. We are the nation's third largest export gateway and the foremost wheat exporter, handling more than 30 percent of all exported U.S. wheat. The Port of Portland ranks fourth nationally as an import and export facility for automobiles.

As you know, all of this activity depends greatly on the policies and actions of the U.S. Army Corps of Engineers (the Corps). A high priority for our region is the plan to deepen the Columbia River deep-draft channel from 40 feet to 43 feet. This is the top priority for the Port of Portland's marine activities.. My testimony today will cover the following points:

- Our progress on the feasibility study for the Columbia River channel deepening projects and the need for full funding for the study in the FY 1996 budget.
- Our strong support for the Corps' hopper dredge fleet.
- The limits of regional financial support for salmon recovery measures.

Let me begin by expressing our appreciation for this subcommittee's past assistance on the feasibility study. Two years ago, your members agreed to language directing the Corps to reduce the scope, cost, and timetable for the feasibility study of the Columbia River channel deepening project. The Corps has responded very well to this directive. The Corps reduced the estimated cost of the study from nearly $10 million to $6.1 million. We began the study last summer, based on the lower cost estimate, bringing significant savings to all taxpayers and the local sponsor ports.

COLUMBIA RIVER CHANNEL DEEPENING PROJECT

As Congress focuses on deficit reduction and economic revitalization and growth, we should not lose sight of the importance of a healthy and efficient transportation system. In addition to being key links in the transportation system, marine ports are economic engines that create jobs, stimulate private business, promote growth and competition, and strengthen the economy. Investments in seaports, through federal and local user-fee funded development programs, will return dividends to producers, shippers, and the public. As you know, ports must perform these services efficiently and with as little impact on the environment as possible. This responsibility has become increasingly challenging in recent years.

Our top priority is to assure that this important transportation and trade center can continue to provide the nation's producers with cost-effective access to the rapidly growing Pacific Rim markets. To do so, the 100 miles of river channel between our terminals and the Pacific Ocean need to be deepened and maintained at the proposed 43-foot level. Thus, we are requesting full funding for the Corps capability in this year's bill, $900,000 in the President's budget for fiscal year 1996, to provide continued funding for the feasibility study process.

At the current channel depth of 40 feet, the Columbia River channel depth is adequate to handle most the ships calling on the river. Yet, larger ships with deeper drafts mean a deeper channel will be necessary very soon.

Ships with drafts greater than 38 feet calling at Portland have increased from two per year in 1981 to 126 in 1993, the most recent year with complete statistics. All major West Coast container carriers are building "post-Panamax" vessels with drafts that exceed our 40-foot channel.

Mr. Chairman, completing our project is more than a dredging issue. It is a national transportation and competitiveness issue. Ports on the lower Columbia River are transshipment centers for export cargo moving on the inland waterway, rail and highway systems. Yet our regions' ability to make sure the deep-draft channel functions well with the rest of the system is minimal. These critical miles, from our docks to open water, are proving to be the most difficult miles to improve. Channel improvements are more costly and time consuming to complete, based on the reports we receive from other projects around the country. Even maintenance of existing approved channel depths has been difficult in many cases.

Our appeal today for your assistance is based on regional and national interests. For producers and shippers throughout the Pacific Northwest and around the country, the Columbia River system is an enormous asset. The system faces unprecedented challenges, and we seek your leadership in helping rise to meet those challenges.

In the interest of time, we will not enumerate all of those challenges here today. But I would like to focus on two briefly, as they relate to the need to deepen the channel in the Columbia River. First is the overall growth in commerce on the river system. At Portland, that total cargo base is made up of grains, mineral bulk commodities, breakbulk, containers, automobiles, and other cargo operations.

Led by large volumes of bulk cargo and record-breaking growth in container volumes, the Columbia River system is handling more cargo year after year. Grain volumes through Portland alone rose by 15.6 percent over the previous year. Container growth at Portland has led all West Coast seaports for the last three years and that category shot up 32.8 percent in 1994. These statistics are important from a national perspective because these cargoes come from producers around the nation. Wheat shipments, to name one example, originate in the Dakotas, Nebraska, and Kansas. Corn handled at Kalama, Washington, is produced on farms in Iowa, Nebraska, Minnesota, and the Dakotas.

In the auto shipment business, import cars are distributed to 40 states from Portland. And exports, autos built in the U.S. for shipment to countries throughout the Pacific Rim, make up an increasingly significant segment of the business. These export cars mean jobs in plants in Kentucky and Ohio. In summary, you can see our ports serve as the gateway for products from around the country.

This leads to challenge number two. To handle this growth in cargo, Portland and other lower Columbia River ports are being served by larger ships with greater capacity and deeper draft. As these ships continued to call more frequently, the sharp increase in deeper drafts is pushing the need for improvements to the deep-draft channel in the Columbia. The Port of Portland, in its management of the transportation system with partner ports on the lower river, can manage most of these changes very effectively. With our own resources, we are adding crane capacity, expanding our rail systems, improving truck capacity and flow, and acquiring new facilities for further expansion.

One area where we seek this committee's leadership is navigation improvements themselves, the piece of the transportation picture that has historically been a federal responsibility. Federal support for navigation, the heart of the Corps' mission, is central to achievement of the nation's important economic and international trade goals. We are among our region's most vocal advocates for national policies that will enable the Corps to carry out its mission decisively and economically. We recognize that this also requires financial obligations, but we believe that user fees and cost-sharing have made local ports much more reliable partners in these endeavors.

HOPPER DREDGE FLEET: BENEFITS TO MANY REGIONS

How well we look after and plan for the smooth movement of goods and freight into and out of this nation will determine our nation's job growth, our quality of life, and our country's competitive position in the world. The Corps' hopper dredges are central to the water transportation system. Benefits from the work accomplished by these dredges are felt well beyond our region. Goods originating from the East, the Midwest, the states bordering Canada, and the entire Pacific Northwest benefit from timely navigation assistance from the Corps' dredge fleet. Today, the Port of Portland, other Columbia River ports, and the coastal ports of the Pacific Northwest work as export gateways for the nation. By their focus on exports, these ports provide a very positive contribution to our balance of trade. Strategic investments to assure effective navigation help our customers around the country remain competitive and thrive in a tough global marketplace.

The Corps' hopper dredge fleet is essential to our ability to compete. These dredges, in our region the YAQUINA and the ESSAYONS, were built specifically for the work they do. They do this job well. They operate in rough conditions along the Oregon and Washington coasts. Their mobility has them at the scene of an emergency quickly, a crucial feature in our region where the presence of the private dredge fleet is limited. A review of past bidding for Corps work shows the limited number of bids received. At times, the private fleet has not performed satisfactorily. Breakdowns and associated delays have meant some projects were not maintained in a timely fashion. Recent examples include the Chetco, Rogue, and Southern Oregon Coastal projects.

Beyond the dredging work, this fleet provides another important, though less visible, service to the nation's taxpayers. Their presence means more competitive bidding. On the private side, there are relatively few dredging companies with hopper dredge capacity. In the Pacific

Northwest, this translates into few bids and less competition for the work. The result can be higher bids and higher cost for the dredging work completed. Having the Corps fleet provides a competitive counterbalance in the market. If this competitive element of the Corps fleet were lost, we believe the costs for dredging will rise for ports and taxpayers alike.

As you know, Congress has set aside 7.5 million cubic yards of work for the private sector in each of the last two years. This has been accomplished by taking the work out of the allotment normally handled by the Corps minimum fleet. Before taking this step again, Congress should review the experience of this set-aside. Determine how many bids there were on each contract. Review these bids against the government estimate. Ask whether there were cost overruns or project delays. I urge Congress to look at these questions before making further major changes in the operation of the hopper dredge fleet. I urge Congress to reconsider whether, in view of cost and dredging efficiency, the 7.5 million cubic yard set-aside ought to be eliminated.

SALMON RECOVERY: THE REGION'S ABILITY TO PAY HAS REACHED ITS LIMIT

Annual salmon recovery costs to the region's utility ratepayers and the Bonneville Power Administration have increased from $30 million in 1981 to more than $500 million in 1995. These increases have made two things increasingly clear. First, the effectiveness of the salmon recovery efforts must be closely monitored and evaluated objectively so that future decisions can be based more on fact than on theory. Second, neither the Bonneville ratepayers nor others in the region have the ability to pay more for continually growing salmon programs.

CONCLUSION

Let me thank you again for your subcommittee's support for navigation needs over many years. You have been leaders in enhancing our ability to move goods and freight in a cost-effective and timely manner. Your assistance has proved critical in the past and it will be all the more essential in the future.

I would be happy to respond to any questions.

Mr. MYERS. And a good job you are doing.

Mr. BUNN. Thank you. Tom, I had a quick question for you. You had mentioned to me before the lost revenue based on that three-foot per ship. Do you know right off the top of your head?

Mr. DECKER. Grain vessel, the three foot of lost depth represents about $300,000 per sailing, in cargo that left behind. For the kind of vessel you see there, which is a container vessel, it is even more expensive, it is about $1.2 million in cargo value that remains on the dock. So that becomes a very cost inefficient way for a shipping firm to run their operation, and they clearly are concerned about that when they look at our channel.

Thank you.

Mr. BUNN. Thank you.

Mr. BEVILL. How deep is your channel?

Mr. DECKER. The channel now is 40 feet deep, authorized—now what I want to clarify, though, is many depths along that 100-mile channel are deeper than that. Some of them 70, 80, 90 feet deep. We have got probably 25 percent of the river miles that actually need to be deepened that 3 feet. So it is not the entire channel that will be worked on.

Mr. MYERS. Makes us less competitive in world markets, doesn't it?

Mr. DECKER. If I had more time, I would get into that, but I think you have heard that.

Mr. MYERS. We understand, we have been through it.

Mr. DECKER. Thank you.

Mr. BUNN. Thank you.

WEDNESDAY, MARCH 29, 1995.

COE HOPPER DREDGES, COLUMBIA RIVER AND COOS BAY CHANNEL

WITNESS

GLENN VANSELOW, EXECUTIVE DIRECTOR, PACIFIC NORTHWEST WATERWAYS ASSOCIATION

Mr. BUNN. Mr. Vanselow.

Mr. VANSELOW. Mr. Chairman, I would request very briefly to go off the record and to say that we fully support Keith Leavitt's testimony, but we would like to hear what he said, before we got here.

Mr. MYERS. We apologize for that.

Mr. VANSELOW. I understand your circumstances. Mr. Chairman, Members of the committee, appreciate the opportunity to be here today. I am Glenn Vanselow, I am the Executive Director of the Pacific Northwest Waterways Association.

We represent 140 member organizations, supporting economic development activities in Oregon, Washington and Idaho. Our members include grain growers that contribute to exporting the one-third of the U.S. wheat exports that move out of the Pacific Northwest each year, as well as public port authorities, tug and barge operators, steamship operators, manufacturers, and others that are involved with economic development in the Northwest. And again, we do appreciate being invited to testify today.

Our written testimony supports a number of projects and issues that are being addressed before you today by others from Oregon and Washington. These include authorizing and appropriating funds for the Coos Bay channel deepening in the State of Oregon, funding the feasibility study that Tom just spoke about on the Lower Columbia in Oregon and Washington, and funding continued Hanford cleanup in the State of Washington.

We do have three additional items that we would like to take just a little bit more time on, one that you heard about from Ms. Mendenhall, maintenance of the public dredge fleet. We strongly endorse maintaining the Federal hopper dredge fleet and eliminating the 7.5 million cubic year set-aside.

The public fleet provides the lowest cost and most timely response to dredging needs in the Pacific Northwest. This dredging work, by the way, is 100 percent, and then some, paid for by the users through the harbor maintenance tax. Many of our members do pay that tax, as they are shippers of cargo, and the users in the Northwest prefer to have that work done by the Federal Government with the Federal fleet.

Regarding Corps operations, we are deeply disturbed by proposals that we have heard presented to Congress, as well as from the administration, from OMB and from the Corps of Engineers, that would drastically reduce Corps of Engineers funding for basic services, including maintenance of both inland waterways and deep draft ports and harbors. We urge the committee to resist these proposals.

The Corps maintains the transportation infrastructure that turns the Nation's and our region's rivers and harbors into economic benefits. Over 20 percent of the employment in the Northwest States is directly related to international trade.

The Corps projects provide jobs, they sustain local economies, and they increase the competitiveness of U.S. goods in foreign markets. They are among the few Federal programs that are analyzed to ensure that economic benefits exceed the costs.

Eliminating the Corps programs would not be cost-effective. And again, with respect to the majority of those programs that are on the block right now, our members are paying into that Harbor Maintenance Trust Fund and not one has told us that they oppose having that tax support the dredging of the smaller coastal ports that you will hear from.

The third area is salmon and the cost of recovery. The Bonneville Power Administration and the regions' ratepayers have seen the cost of salmon recovery measures grow from $30 million in 1981 to over $500 million per year beginning in 1995, if the NMFS draft recovery plan is implemented. To put it simply, our region is tapped out.

Neither the Bonneville Power Administration ratepayers, nor others in the region, have the ability to pay more for continually growing salmon programs. The ports are public bodies, they are supported by local taxpayers. Gross revenues, not profits, from the tug and barge operations on the river are less than OMB recently offered as relief to Bonneville under the Northwest Power Act.

The grain elevators operate on profit margins of less than a penny a bushel, and they cannot pass along their costs to the international customers that are buying on an international market. The money to make up the non–Bonneville share from the Power Act, let alone increase costs of the recovery plant, is not available in the region.

It will be self-defeating to think that other interests in the region can absorb more fish and wildlife costs. If more dollars are needed to fund the Endangered Species Act, the Northwest Power Act programs, there is one place to turn in our view, and that is the Federal Government. And by that, we mean federally appropriated funds.

That makes sense to us for two reasons. The first, the region is paying more than any other region in the world for endangered salmon protection, and in this case the Endangered Species Act has resulted in an unaffordable Federal mandate. And secondly, right now, there are no checks and balances on the Federal agencies and the Power Planning Council. They simply demand more each year without biological monitoring and without scientific justification.

One way to ensure that Federal agencies employ biologically sound and cost-effective measures is to make those agencies responsible for a significant portion of the cost. Federal Government participation in paying for recovery measures would bring far greater accountability to the agencies. The benefits would increase, the costs would go down. Both the administration and Congress would have far greater opportunity to make sure that the agencies provide maximum benefit at the lowest possible cost.

We are happy to provide the committee with additional information if you so desire. We appreciate the opportunity to appear before you today and thank you to the staff for a copy of Mr. Leavitt's testimony.

Mr. BUNN. Thank you. We wanted to be sure you had that since you mentioned you had missed it.

Mr. VANSELOW. I was having fun. I have already seen this.

[The statement of Mr. Vanselow follows:]

Testimony of
Glenn Vanselow, Ph.D., Executive Director
PACIFIC NORTHWEST WATERWAYS ASSOCIATION
P.O. Box 61473, Vancouver, WA 98666-1473, (360) 699-4666
Before the
U.S. House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman
March 29, 1995

The Pacific Northwest Waterways Association appreciates the opportunity to present its views on appropriations issues to the Committee. PNWA membership includes 140 organizations and individuals in Oregon, Washington, and Idaho. PNWA represents:

- Public port authorities on the Pacific Coast, Puget Sound, and Columbia/Snake River System;
- Public utility districts, investor-owned utilities, and direct service industries;
- Irrigation districts, grain growers and upriver and export elevator companies;
- Major manufacturers in the region;
- Forest products industry manufacturers and shippers; and
- Tug and barge operators, steamship operators, consulting engineers, and others involved in economic development throughout the Pacific Northwest.

PNWA has a long history of working with the Committee and the U.S. Army Corps of Engineers on projects of regional and national importance, sharing the challenge to maintain and develop our transportation infrastructure. Our members wish to thank the Committee for its support of Pacific Northwest transportation, hydropower and salmon enhancement programs and projects which are included in the Administration's budget request.

OPERATIONS AND MAINTENANCE FOR NAVIGATION

We ask the Committee for full funding for ongoing operations and maintenance (O&M) of the federally authorized navigation channels in the Columbia/Snake river system, the Washington and Oregon coastal ports, and Puget Sound. Although funding for the O&M budget has remained flat in recent years, the cost of completing this work is rising due to a greater emphasis on environmental protection. Fully funding O&M is a cost-efficient means of fully utilizing the federal government's investment in channel operations.

We are, however, deeply disturbed by proposals we are hearing from some parties testifying before Congress and from within the Administration that would drastically reduce Corps of Engineers funding for basic services, including the maintenance of both inland waterways and deep draft ports and harbors.

We urge the Committee to resist these proposals. The Corps maintains the transportation infrastructure that turns the nation's rivers and harbors into economic benefits. Over 20 percent of the employment in the Northwest states is directly related to international trade. The Corps' projects provide jobs and sustain local economies, and they increase the competitiveness of U.S. goods in foreign markets. They are among the few federal programs that are analyzed to ensure that economic benefits exceed the costs. Eliminating Corps programs would not be cost-effective.

DEEP DRAFT CHANNEL DEEPENING

The Columbia River deep draft channel is the lifeblood of the Columbia/Snake River System. To protect future growth and development of the River System, we ask the Committee for full funding for the Corps' feasibility study of the lower Columbia River channel deepening project. This funding would pay for the federal government's share of the study to investigate improving the existing 40-foot navigation channel by increasing the channel depth to 43 feet.

We also are encouraging Congress to pass a Water Resources Development Act in 1995, including authorization of the Coos Bay, Oregon channel deepening project. We urge the Committee to look favorably upon the forthcoming authorization and to appropriate funding for this important project at the earliest possible date.

MINIMUM DREDGE FLEET

We expect that the Committee will be asked again this year to provide more work to the private dredging industry by reducing the work of the hopper dredges operated by the Corps. We strongly encourage the Committee not only to withstand pressure to further reduce the work of the public fleet, but to eliminate the 7.5 million cubic yard set aside for private contractors. We oppose the effort to reduce the federal dredge fleet because we believe it will ultimately lead to the total deactivation of the fleet.

Development of the public dredge fleet as it exists today is the result of many years' efforts to maintain and improve our nation's federally maintained navigation channels. U.S. taxpayers have millions of dollars invested in the Corps dredges. Their useful lives will last well into the next century. To deactivate all or part of the fleet is, quite simply, a waste. Because they are large, complicated vessels, it could take months before mothballed dredges could be put into service to perform emergency work.

With respect to cost, over the last eleven years we have seen numerous occasions where private industry bids were well in excess of the government estimate when no Corps dredge was in the area to perform the work. There is only one private hopper dredge based on the West Coast. All other private dredges capable of servicing smaller ports are owned by firms located outside the Pacific Northwest.

Emergency dredging is often required to restore the federal navigation channel to its authorized depth. Shoaling can occur very rapidly, and it has a potentially dangerous impact on export shipping and the sport and commercial fishing fleet. Shippers and ports cannot afford to wait several weeks for a private dredge to be diverted from another part of the country to do the work.

The coastal and river ports of the Pacific Northwest rely heavily on the response and capability of the Corps' dredges. Emergency dredging is often required to restore the federal navigation channel to its authorized depth. For example, the loss of even one foot of draft due to slow response can cost each grain vessel $324,000 in cargo value. Shoaling can occur very rapidly, and it has a potentially dangerous impact on export shipping and the sport and commercial fishing fleet. It is unclear if the private dredge industry has sufficient capacity and competition to adequately maintain the Columbia, Snake, Willamette and Chehalis Rivers to allow ships to take full advantage of the authorized channel, and to respond to the non-routine emergency dredging needs of small and medium sized ports on the Oregon and Washington coasts. The risk that they do not is unacceptable and potentially catastrophic. To remain competitive in world markets, Northwest ports require low-cost and timely completion of dredging requirements.

OPERATIONS AND MAINTENANCE OF THE REGION'S HYDROPOWER SYSTEM

The Columbia Basin's hydropower system is increasingly coming under attack. The current National Marine Fisheries Service's draft salmon recovery plan shifts over 85 percent of the Basin's federal water storage from hydropower to flow augmentation and spill for salmon. We do not object to biologically effect salmon recovery measures, but recent scientific evidence, including research by NMFS' own scientists, shows that survival is far higher in the reservoirs than previously thought. This suggests that the massive flows and spills in the draft recovery plan will not provide biological benefit. For the same reasons, we oppose the call for drawdowns at reservoirs on the Snake River and at John Day Dam on the Columbia.

SALMON RECOVERY

The Bonneville Power Administration and the region's rate payers will see the cost of salmon recovery measures grow from $30 million in 1981 to over $500 million in 1995 if the NMFS draft recovery plan is implemented.

These increasing salmon costs are not only driving up Bonneville's power rates, they are forcing utility customers to look elsewhere for their power. Public utilities in Washington and Oregon have already contracted with independent producers to provide energy at rates competitive to BPA's. Others are looking to do the same.

While Bonneville's costs are increasing, the cost of alternative power production is declining. Further increases in BPA rates will drive more customers off the Bonneville system. More rate hikes will diminish, not increase, the capability of BPA to fund the fish programs. Bonneville is at the limit in terms of its ability to pay.

BPA is right to seek relief. But we want to be clear, the answer cannot be found in shifting costs to other Northwest entities. NMFS, OMB or others seeking a new set of deep pockets to supplement BPA funding must understand, to put it simply, the region is tapped out.

Neither the Bonneville ratepayers nor others in the region have the ability to pay more for continually growing salmon programs. Here are a few examples. The ports are public bodies and are supported by local taxpayers. We estimate the gross revenues, not profits, from tug and barge operations above Bonneville to be less than OMB recently proposed for relief for Bonneville under the Northwest Power Act. The grain elevators operate on profit margins of less than a penny a bushel. The grain growers compete on an international market and cannot pass along additional costs to their customers. And, we should not forget that their prices are already supported by the federal taxpayer. The money to make up the non-Bonneville share from the Power Act, let alone the increased costs of the recovery plan, simply is not available in the region. It will be self-defeating to think that other regional interests can absorb more fish and wildlife costs.

If more dollars are needed to fund the federal Endangered Species Act and the Northwest Power Act, there is only one place to turn—the federal government. And by that, we mean federally appropriated funds. This makes sense to us for two reasons. The first is that the region is already paying more than any other region in the world for endangered species protection. We cannot pay more to implement these federal programs. We believe that, in this case, the Endangered Species Act has resulted in an unaffordable federal mandate. It is only right that the federal government should share in the cost of implementing federal legislation.

Secondly, there are no checks and balances on the federal agencies or the Power Planning Council. They simply demand more each year. Without biological monitoring and without scientific justification, the region's costs have increased at an explosive rate. One way to ensure that the federal agencies employ biologically sound and cost-effective measures is to make them responsible for a significant portion of the cost. Federal government participation in paying for recovery measures would bring far greater accountability to the agencies. The benefits would increase and the costs would go down. The Administration and Congress would have a far greater opportunity to make sure that the agencies provide maximum benefit at the lowest possible cost.

We believe that with such accountability and oversight, the region would already have an effective recovery plan in place. For less than was spent in 1994, the agencies could increase the number of barges, improve the smolt transportation program, install surface collectors, improve bypass at the dams, reduce the harvest of wild stocks, improve hatchery practices, improve rearing habitat and increase survival of the salmon.

The Administration's budget proposes shifting Mitchell Act hatchery funding into the Bonneville Power Administration budget. We oppose the Administration's proposal. As with other measures, to ensure control and oversight, the hatcheries should continue to be funded by the federal government. Reinstatement of Mitchell Act funding should be contingent upon the marking of all hatchery fish.

HANFORD CLEANUP

We ask the Committee to continue to adequately fund the Department of Energy cleanup of 45 years of accumulated defense waste currently stored at the Hanford site. We recognize that defense waste cleanup is a long-term project that will be most cost effective and most rigorously pursued if Hanford is a viable, operating site. Therefore, we strongly urge the Committee to support a complete, ongoing Hanford scientifically and technologically based research and operations program in order to ensure long-term funding for waste cleanup.

WETLANDS

PNWA supports continuing to move forward with the Administration's wetlands initiatives. Elements of the Administration's wetlands policy and current Senate and House Clean Water proposals set criteria for wetlands and watershed management plans, to integrate them with broader water resource and land use planning and management. PNWA supports a proposal which would take this one step further—that is, allow the state and local land use planning processes to trigger the federal wetlands regulatory process, at the option of the local jurisdiction. The proposal would offer local jurisdictions three options:

1. To proceed under the current regulatory programs, under which development actions would be permitted individually;
2. To develop a plan which meets the requirements of a Wetlands and Watershed Management Plan, which, upon completion, is approved by the federal government, or
3. To allow local jurisdictions to elect to initiate the federal regulatory process, including the alternatives analysis and mitigation planning for land use classes, as a part of their local land use process. The result of this cooperative process would be the issuance of a Programmatic General Permit or Abbreviated Processing Procedures to authorize development, protection and mitigation activities consistent with the plan.

This proposal would allow communities and land owners to get agreement from federal regulators on where wetlands need to be protected and when they can be filled and compensated for through the use of mitigation credits. It will allow the land use planning process (or other state or local planning process) to serve as the alternatives analysis to meet Section 404 (b)(1) requirements. We believe that this will increase the quality of local land use plans, increase the certainty of implementing the land use plans adopted by local jurisdictions, increase the certainty of protection for valuable wetlands and increase the certainty that local communities will be able to meet their economic development needs.

There is widespread support in the Pacific Northwest for this approach, including support by the Oregon Division of State Lands and the Washington Department of Ecology.

CONCLUSION

On behalf of 140 members from throughout the Pacific Northwest, we thank the Committee for giving us this opportunity to review a number of issues important to the environmental and economic prosperity of our region.

WEDNESDAY, MARCH 29, 1995.

PORT ISSUES

WITNESS

ROB HALVERSON, COMMISSIONER, PORT OF NEWPORT, OREGON

Mr. BUNN. Mr. Halverson.

Mr. HALVERSON. Mr. Chairman, committee members, thank you for the opportunity to sit before you this day and present the testimony of the Port of Newport. That is Newport, Oregon. My name is Rob Halverson, I am the current vice-chair of the port district. With me today in the audience is Alan Brown, our chairman.

Our avocation is in the interest of the financial well-being of the Port, its activities and effect on small businesses serving our community. The Port district is located in Lincoln County on the Yaquina Bay and is home of the OSU Hatfield Science Center. It is about 120 miles southwest of Portland, Oregon on the central Oregon coast, soon to be the home of Free Willie.

The port has traditionally been a port of transshipment of logs and lumber products, both in the foreign and domestic markets. Our terminals are the nearest to—it is the nearest Oregon port to the world shipping lanes and provides easy transit of vessels engaged in world transportation into Yaquina Bay. And recently, the Port has received inbound logs from New Zealand destined for processing in Oregon mills.

Historically, we have the privilege of saying that we have been number two on the West Coast in lumber exports at one point, and during the peak of the Vietnam War, we shipped cargos to Vietnam in the interest of national security. Although a small port, we are an effective port, a necessary port, I believe, on the Oregon coast.

As it relates to the Federal hopper dredge fleet, we would like to state that we oppose any cuts in the budget that would negatively impact the Corps of Engineers' ability to continue maintenance dredging to ports such as Newport. We would also urge this committee to support the Federal dredging program and the necessary funding required to make them viable as it relates to deep draft dredging.

I would also like to urge this committee to resist any attempts to place the Corps-owned hopper dredges on a standby status or if it is within your power, to keep any movement toward privatization of the fleet.

The Corps in our minds are the white knights of the Oregon coast. They have come to our aid time and time again in specific circumstances where, due to storms and other issues, the dredging has been necessary. We have called upon them, it has been immediate responsive, and we have nothing negative to say about the Corps.

It has become apparent with our meetings recently with the Corps of Engineers that the issue is not a funding issue. As has been mentioned, the Harbor Maintenance Fund, the tax collected, this fund continues to grow year after year. The issue is obviously one of manpower and equipment, and we would urge you as a committee and any way that you possibly can to further enhance the manpower and the equipment abilities of the Corps of Engineers, rather than to go along with any cutbacks.

Secondly, the Port of Newport would urge this committee to sustain the funding for the continuing authority's programs of the Corps. Yaquina Bay breakwater is an example. That project supports a commercial fishing fleet in the Port of Newport.

We have entered into agreements to fund a feasibility study, and at this—the study is currently underway and due to be completed in December of this year. And at that time, we will join again with the Corps and the State to fund repairs.

Newport's commercial fishing fleet equates to 450 small businesses, providing over 1,000 direct family wage jobs and contributes over $70 million to the local economy, with fish tonnage landing second only to Seattle. And that issue is debatable, we would say that perhaps we are in first position.

Third and certainly not least, is the salmon issue. The port owns a saltwater facility utilized to acclimatize coho salmon smolts produced at State hatcheries. Last Saturday, the Oregon Department of Fish and Wildlife delivered the last of 325,000 coho smolts to our facilities for the first time since 1990—thirty seconds, I will complete. They will be released in the Pacific and returned in the fall of 1996.

What we would like to do, we respectfully request a minimum of $300,000 of President Clinton's request for juvenile fish mitigation to be allocated to this local government project. We have the cooperation between the Oregon Fish and Wildlife Departments, Confederated Tribes of Siletz, Lincoln County, City of Newport, Port of Newport, Hatfield Marine Science Center, Oregon Coastal Zone Management Association, local students, and many other volunteers. This is a unique project. And we would appreciate your support.

Thank you.

Mr. BUNN. Thank you very much.

[The statement of Mr. Halverson follows:]

TESTIMONY
OF THE
PORT OF NEWPORT
BEFORE THE
ENERGY AND WATER DEVELOPMENT
SUBCOMMITTEE ON APPROPRIATIONS
MARCH 29, 1995

MR. CHAIRMAN AND HONORED COMMITTEE MEMBERS, IT IS WITH PLEASURE THAT I AM HERE TODAY TO PRESENT THE TESTIMONY OF THE PORT OF NEWPORT,OREGON, BEFORE THIS ESTEEMED COMMITTEE, MY NAME IS ALAN BROWN AND I AM THE CURRENT CHAIRMAN OF THE PORT DISTRICT. WITH ME TODAY IS COMMISSIONER ROB HALVERSON, OUR VICE-CHAIRMAN.

MY VOCATION IS THAT OF A SMALL BUSINESSMAN OWNING AND OPERATING A TIRE DEALERSHIP, WHILE MR, HALVERSON IS A LONGSHOREMAN. OUR AVOCATION IS OUR INTEREST IN THE FINANCIAL WELL-BEING OF THE PORT, ITS ACTIVITIES AND EFFECT ON SMALL BUSINESSES SERVING OUR COMMUNITY.

THE PORT DISTRICT IS LOCATED IN LINCOLN COUNTY ON THE YAQUINA BAY AND IS HOME OF THE O.S.U. HATFIELD MARINE SCIENCE CENTER. IT IS ABOUT 120 MILES SOUTHWEST OF PORTLAND, OREGON.

THE PORT OF NEWPORT HAS TRADITIONALLY BEEN A PORT OF TRANSSHIPMENT OF LOGS AND LUMBER PRODUCTS INTO BOTH THE FOREIGN AND DOMESTIC MARKETS. OUR SHIPPING TERMINAL IS THE NEAREST OREGON PORT TO THE WORLD SHIPPING LANES AND PROVIDES EASY TRANSIT OF VESSELS ENGAGED IN WORLD TRANSPORTATION INTO YAQUINA BAY. RECENTLY, THE PORT HAS RECEIVED INBOUND LOGS FROM NEW ZEALAND, DESTINED FOR PROCESSING IN OREGON MILLS. HISTORICALLY, WE HAVE BEEN #2 ON THE WEST COAST FOR LUMBER EXPORTS AND DURING THE PEAK OF THE VIETNAM WAR SHIPPED CARGOES IN THE INTEREST OF NATIONAL SECURITY. BEFORE I PROCEED FURTHER, ALLOW ME TO EMPHASIZE THAT WHEN I SPEAK OF LOG EXPORTS, I AM REFERRING TO LOGS GENERATED FROM PRIVATE LANDS ONLY.

THE PORT OF NEWPORT OPPOSES ANY CUTS IN THE BUDGET THAT WOULD NEGATIVELY IMPACT THE CORP OF ENGINEERS ABILITY TO CONTINUE MAINTENANCE DREDGING TO PORTS SUCH AS NEWPORT. THE FEDERAL DREDGING PROGRAM IS ESSNTIAL TO OUR CONTINUING OPPORTUNITY TO PRESENT A WINDOW FOR OREGON PRODUCTS TO ENTER THE WORLD MARKET AND INBOUND PRODUCTS TO REACH U.S. MARKETS. AS YOU ARE WELL AWARE, OUR TRADE BALANCE IS NEGATIVE; AND WHILE OUR TRAFFIC LOAD IS SMALLL, IT STILL WORKS TO THE COUNTRY'S ADVANTAGE. WE URGE THIS COMMITIEE TO SUPPORT THE FEDERAL DREDGING PROGRAM AND FUNDING REQUIRED TO KEEP THE CORP VIABLE AS IT RELATES TO NAVIGATION DREGING.I WOULD BE REMISS IF I DID NOT TAKE THIS OPPORTUNITY TO URGE THIS COMMITTIE TO RESIST ANY ATTEMPTS TO PLACE THE CORPS-OWNED HOPPER DREDGES ON STAND-BY STATUS, OR TO MOVE TOWARD PRIVATIZATION OF THE FLEET.

TESTMONY-PORT OF NEWPORT
ENERGY AND WATER DEVELOPMENT SUBCOMMITTIEE ON APPROPRIATIONS
MARCH 29, 1995
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THE CORPS FLEET ON THE WEST COAST HAS NOT ONLY BEEN QUICK TO RESPOND TO EMERGENCY DREDGING NEEDS FOR THE INTERNATIONAL FLEET CALLING ON NEWPORT BUT IS ALSO A LIFE SAVER TO THE PORTS LARGE COMMERCIAL FISHING FLEET AND RECREATIONAL BOATING COMMUNITY. THE COMMERCIAL FISHING FLEET CROSSES THE BAR DAILY SO AS NOT TO MISS LIMITED FISHING OPPORTUNITIES, DOING SO AT TIMES AT HIGH RISK TO HUMAN LIFE. WITH A WELL MAINTAINED DREDGED CHANNEL, THE RISK OF LOSS OF LIFE IS SUBSTANTIALLY REDUCED.

IN 1987, THE BAR IN YAQUINA BAY WAS CLOSED TO SHIPS DUE TO SHOALING CAUSED BY STORM CONDITIONS OFF THE PACIFIC COAST. WITHIN DAYS, THE ENTRANCE TO YAQUINA BAY WAS MADE PASSABLE BY THE QUICK RESPONSE OF THE CORPS DREDGE "YAQUINA". AGAIN IN 1992, IMMEDIATE DISPATCH OF THE "YAQUINA" PREVENTED THE BAR CLOSURE TO SHIP TRAFFIC. WITHOUT THE CORPS FLEET, WE DO NOT BELIEVE THIS WOULD HAVE HAPPEND. COMMERCE IS THE LIFEBLOOD OF OUR PORT DISTRICT.

ADDITIONALLY, THE PORT URGES THIS COMMITTEE TO SUSTAIN THE FUNDING FOR THE CONTINUING AUTHORITIES PROGRAM OF THE CORPS. THE YAQUINA BAY BREAKWATER THAT PROTECTS NEWPORT'S COMMERCIAL FISHING FLEET AND THE PORTS DOCK FACILITIES IS OLD AND WORN OUT. THE PORT, STATE OF OREGON, AND CORPS HAVE ENTERED INTO AGREEMENTS TO FUND THE FEASIBILITY STUDY. THIS STUDY IS CURRENTLY UNDERWAY AND DUE TO BE COMPLETED IN DECEMBER THIS YEAR. AT THAT TIME, WE WILL JOIN AGAIN WITH THE CORPS AND STATE TO FUND THE REPAIRS. NEWPORT'S COMMERCIAL FISHING FLEET EQUATES TO 450 SMALL BUSINESSES, PROVIDING OVER 1,000 DIRECT FAMILY WAGE JOBS, AND CONTRIBUTES OVER 70 MILLION DOLLARS TO THE LOCAL ECONOMY, WITH FISH TONNAGE LANDINGS SECOND ONLY TO SEATTLE.

I JUST SPOKE OF THE DIRECT JOBS PROVIDED BY THE COMMERCIAL FISHING FLEET THAT CALLS NEWPORT HOME. THIS FLEET FISHES IN ALASKA,THE SOUTH SEAS AND THE WEST COAST. DON'T BELIEVE THE STORIES THAT FISHING IS A DYING INDUSTRY. SEGMENTS ARE IN TROUBLE, BUT THE OVERALL INDUSTRY IS IN GOOD SHAPE IN THE NORTHWEST. WITH NEWPORT FISH LANDINGS 2ND ONLY TO SEATTLE.

ONE OF THOSE SEGMENTS IN TROUBLE IS THE COHO SALMON FLEET; EVEN THE RECREATIONAL SEGMENT IS IN TROUBLE. FOR THE SECOND STRAIGHT YEAR, THERE WILL BE NO RECREATIONAL OCEAN FISHING. TO THAT END, WE ASK THIS COMMITTEE TO JOIN US IN A COOPERATIVE PROGRAM TO AID IN THE RECOVERY OF RECREATIONAL FISHERY,AND EVENTUALLY THE COMMERCIAL FISHERY.

THE PORT OWNS A SALTWATER FACILITY UTILIZED TO ACCLIMATIZE COHO SALMON SMOLTS PRODUCED AT STATE HATCHERIES. AS I JOURNEYED HERE TO WASHINGTON, THE OREGON DEPARTMENT OF FISH AND WILDLIFE DELIVERED THE LAST OF 325,000 COHO SMOLTS TO OUR FACILITY FOR THE FIRST TIME SINCE 1990. THEY WILL BE RELEASED TO THE PACIFIC AND RETURN IN THE FALL OF 1996. WE WILL COLLECT BROOD STOCK FOR SUBSEQUENT YEARS. THIS PROGRAM IS INNOVATIVE IN DESIGN AND INCLUDES GOVERNMENT. VOLUNTEERS AND EVENTUALLY PRIVATE INDUSTRY. IT IS TRULY A BOOTSTRAP EFFORT OF THE COMMUNITY TO SAVE OUR SALMON.

THEREFORE, WE RESPECTFULLY REQUEST A MINIMUM OF $300,000 OF PRESIDENT CLINTON'S REQUEST FOR JUVENILE FISH MITIGATION BE ALLOCATED TO THIS LOCAL GOVERNMENT PROGRAM. THIS ALLOCATION WOULD ENSURE THAT OUR HUMBLE EFFORTS WOULD CONTINUE FOR THE INITIAL FOUR YEARS. IT WOULD HELP OFFSET THE OPERATIONAL COSTS. THE PORT IS SEEKING A PRIVATE COMPANY TO LEASE THE BULK OF THIS FACILITY FOR PRIVATE AQUA-CULTURE ACTIVITIES. WE ARE CLOSE,BUT NO BRASS RING YET.

THIS COOPERATIVE EFFORT BETWEEN THE OREGON FISH AND WILDLIFE DEPARTMENT, CONFEDERATED TRIBES OF THE SILETZ, LINCOLN COUNTY, CITY OF NEWPORT, PORT OF NEWPORT, HATFIELD MARINE SCIENCE CENTER. OREGON COASTAL ZONE MANAGEMENT ASSOCIATION, LOCAL STUDENTS AND MANY OTHER VOLUNTEERS NEEDS YOUR HELP TO ENSURE THE SUCCESS OF THIS SMALL RECOVERY PROGRAM INTO THE 21ST CENTURY.

THIS CONCLUDES MY REMARKS AND I WOULD BE HAPPY TO RESPOND TO ANY QUESTIONS OF THE COMMITTEE. I THANK YOU FOR YOUR TIME AND ATTENTION.

WEDNESDAY, MARCH 29, 1995.

PORT ISSUES

WITNESSES

WILBUR E. TERNYIK, CHAIRMAN, PORT OF SIUSLAW COMMISSION, REPRESENTING THE OREGON COASTAL ZONE MANAGEMENT DREDGING COMMITTEE

JOHN FRATT, EXECUTIVE DIRECTOR, PORT OF KALAMA, WASHINGTON

DORIS SHELDON, PORT OF GARIBALDI, OREGON

Mr. BUNN. And the final two that we have listed, Mr. Wilbur Ternyik, and I am sorry if I pronounce your name wrong, and John Fratt from Kalama, Washington. And I appreciate the patience both of you have shown.

Wilbur, if you would start.

Mr. TERNYIK. You want me to go first?

Mr. BUNN. Yes, please.

Mr. TERNYIK. Mr. Chairman and Members of the committee and staff, this has been some 20 years now I have been coming here, and I can't tell you how much I appreciate the fact of the type of people you have on this committee reviewing our projects. I am here again—I am going to read a little bit of this, then I will spare you, because I am going to summarize real fast.

My name is Wilbur Ternyik. I am the Commission President, Port of Siuslaw, Oregon, and the chairman of the Oregon Coastal Ports Maintenance Dredging Committee established by the Oregon Coastal Zone Management Association, Incorporated. The association membership includes over 40 local governments along the Oregon coasts, including seven coastal counties, soil and water conservation district, cities and ports.

Other coastal ports representing from Oregon are also in attendance and are offering testimony today. And I would like to introduce those.

And the first one I am going to introduce, I am going to save the committee, chairman and myself some embarrassment, by saying this is Lucy from Port of Brookings, and I am going to let her pronounce her last name.

Ms. GIAMPAOLI. Lucy Giampaoli.

Mr. MYERS. Welcome. Can you spell it? Maybe you better spell it for the reporter. Write it down, give it to her. She would like to have it written out.

Mr. TERNYIK. And in the back here, Leonard Van Kerner, who will be my replacement on these Washington, D.C. trips. Everything wears out, and I am beginning to do that myself. So I am not sure how much longer I will be coming back here. Leonard Van Kerner, commercial fisherman, Doris Sheldon you have seen before from the Port of Garibaldi also is here also submitting testimony.

Mr. BEVILL. Wilbur, we hope you will be coming many more years.

Mr. TERNYIK. Well, we will see, Congressman.

I wish to comment on the Zirschky proposal that was put in front of the Subcommittee on Transportation. And I am going to do that by reading you my thoughts on that particular thing, which is echoed by all of the small coastal ports.

And the possible total loss of the Corps of Engineers maintenance dredging under the Zirschky proposal operation policy changes coupled with the proposed downsizing of the Coast Guard operation is a one-two punch that will result in the death of Oregon's small coastal ports.

We recognize that the U.S. Coast Guard operation budget is reviewed and approved by the Subcommittee on Transportation. However, the ocean entrance dredging and Coast Guard operations are clearly interlocked. Economy in these port districts would be severely impacted.

It is our position that an adequate multiyear Corps of Engineers operation and maintenance dredging budget should be continued to protect the past infrastructure investments in authorized waterway projects and to be consistent with other Federal economic development programs.

In talking about the Coast Guard, and I realize that that is not anything, but you are so far away from us, I brought some pictures with me that we had brought back here. This is one of our cutters in a recent rescue operation. If you visualize the type of bars that we have out here, Senator Hatfield tells me that——

Mr. MYERS. That is a real surfer there, isn't it?

Mr. TERNYIK. It is a challenge to these boats.

Another one. This one is a little bit hard to understand, but the boats are designed to roll over. Now the men might be expendable, I am not sure. Whatever.

Senator Hatfield told me yesterday that over 50 percent of the cut nationally on the Coast Guard stations will be made in the State of Oregon if this program goes through. We think that is totally unacceptable, that is putting a lot of our people at risk. And not just the commercial fishermen, but a lot of export people, too.

We again echo all of the support for the minimum dredge fleet. And it is not just the Yaquina that dredges the small ports, but the Essyons. And I want to read this one thing that will illustrate that.

I would also like to mention two upcoming navigation projects which are fully supported by all of Oregon's ports, including the small ports. These are the Columbia River channel deepening project and the Coos Bay channel deepening project. Both projects are critical to improving Oregon's position for meeting marketing shipment requirements. The economic spin-off effects to the region's smaller ports will follow the competitive positioning allowed by these waterway improvement projects. We urge Congress to pass the WRDA 1995 this year.

And I said this before and there is always a thing that the small ports are jealous of the big ports. This is not the case. We absolutely know that the big ports are necessary to the future of the small ports. So I don't want to in any way leave you with the idea that our small ports are in competition with the large ones, because we are not.

And of course the continuing authority program, if I had to come back here on every small project to get it authorized, no, we believe that program should go forward. And I guess I am going to read this last one for maybe the last time.

We again extend our sincere appreciation for the committee's careful examination of our budget request for the Federal funding that allows the coastal ports of Oregon to realize the benefits that accrue as a result of earlier channel and jetty improvement projects approved by this committee. We firmly believe that the current system Congress uses to examine and to fund these coastal projects is working well and should be continued into the future.

And I just have to say that after all this time, I really appreciate meeting you people, and despite everything you read in the papers out west about Congress and it is not functioning, if they could come back and actually sit in this chair in front of your committee and watch things work, they would feel better about it.

Thank you.

[The statement of Mr. Ternyik follows:]

STATEMENT OF

Wilbur E. Ternyik, Commission President, Port of Siuslaw, Oregon
and
Chairman, Oregon Coastal Ports Maintenance Dredging Committee,
Oregon Coastal Zone Management Association

before the
Senate Appropriations Subcommittee on Energy and Water Development
and the
House Appropriations Subcommittee on Energy and Water Development
on March 29, 1995

Supporting Continued Funding of the
Corps of Engineers' Civil Works Budget for
Operation and Maintenance (O & M) Dredging of the Oregon Coastal Ports for Fiscal Year 1996

and supporting

Corps of Engineers' Continuing Authorities Program
Preserving the Corps of Engineers' Minimum Dredge Fleet

Mr. Chairman:

My name is Wilbur E. Ternyik, I am Commission President, Port of Siuslaw, Oregon and Chairman of the Oregon Coastal Ports Maintenance Dredging Committee established by the Oregon Coastal Zone Management Association, Inc. The Association membership includes over forty local governments along the Oregon Coast, including the seven coastal counties, soil and water conservation districts, cities, and ports. Other coastal ports representatives from Oregon are also in attendance and are offering testimony today.

As Chairman of the Committee, I support the Administration's proposed Corps of Engineers, Portland District operation and maintenance budget for Fiscal Year 1996. It is the collective view of Committee members that this operation and maintenance budget will be adequate for providing basic channel clearing and sediment removal. Any corps service restrictions due to budget reductions below the proposed budget will seriously affect the navigability of our ports.

We wish to comment on the February 14, 1995 testimony of Dr. John H. Zirschky, Acting Assistant Secretary of the Army (Civil Works) before the Senate Subcommittee on Transportation and Infrastructure on the Water Resources Development Act of 1995.

Dr. Zirschky stated that the Corps "Will discontinue Federal maintenance of harbors that do not generate significant commercial navigation activity and, therefore, do not produce contributions to the Harbor Maintenance Trust Fund". Investigations made by an Association sponsored 1991 study (Strategies for Responding to Reduced Federal Funding of Annual Maintenance Dredging) showed that Oregon's ports have high commercial navigation activity and waterborne commerce value, but it is from commercial fishing activities with lower amounts of tonnage. Therefore, contributions to the Trust Fund from Oregon ports do not adequately reflect the need for maintenance dredging. Just two species of our abundant fish resources can be used as examples of where Corps maintenance has made a difference to the national economy. For the last three years, there have been annual sales of about $11.5 million in Pacific whiting surimi sold to Japan and sales of about $3.5 million in sea urchin uni harvested and processed at Port Orford for sales to Japan. Oregon's ports have a demonstrated national significance to the U.S. economy for the efficiency and effectiveness they provide for strengthening our international trade transportation requirements.

An adequate multi-year Corps of Engineers Operations & Maintenance dredging budget should be continued to protect the past infrastructure investments in authorized waterway projects and to be consistent with the other Federal economic development programs. To abandon coastal ports with this new Corps policy would severely impact these smaller communities.

The possible total loss of Corps of Engineers maintenance dredging under the Zirschky proposed operations policy changes, coupled with proposed downsizing of Coast Guard operations is a one-two punch that will result in the death of Oregon's small coastal ports. We recognize that U.S. Coast Guard operations budget is reviewed and approved by the Subcommittee on Transportation, however, the ocean entrance dredging and Coast Guard operations are clearly inter-locked.

We specifically express our united strong support for the continuance of Corps of Engineers Continuing Authorities Program. This program has been a vital factor in accomplishing a variety of small projects needed in all ports, especially through Section 14, Section 103, Section 107 and Section 111 of the River and Harbor Act and Section 1135 of the Water Resources Development Act. These programs need to be reauthorized to continue the planning and technical assistance needed for our ports, waterway and navigation improvements. There have been many worthwhile projects from these sections along the Oregon Coast, recent examples being the protection of the Winchester Bay West Spit Shoreline and the Port of Newport Breakwater Repair. Shoreline protection requires ongoing maintenance to prevent catastrophic failure of our system of navigable waterways.

I would also like to mention two upcoming navigation projects which are fully supported by all of Oregon's ports. These are the Columbia River Channel Deepening Project and the Coos Bay Channel Deepening Project. Both projects are critical to improving Oregon's position for meeting wood market shipping requirements. the economic spin-off effects to the regions smaller ports will follow the competitive positioning allowed by these waterway improvement projects. We urge Congress to pass WRD A-95 this year.

We would like to voice our strong support for the continued Corps of Engineers dredges used in the Pacific Northwest: YAQUINA and ESSAYONS. These vessels are crucial to maintaining navigation of our coastal port's channels and harbors. We commend the Port District Corps of Engineers staff for their flexible scheduling of those dredges. Their ability to perform our regular dredging and still maintain instant response to emergency situations is essential. There simply is no other capability that can provide this vital service with timely emergency response and still remain cost effective. We are out of business without this type of service.

Commissioner Wilbur E. Ternyik, Port of Siuslaw, Oregon
and
Chairman, Oregon Coastal Ports Maintenance Dredging Committee,
Oregon Coastal Zone Management Association

The Oregon Coastal Ports Maintenance Dredging Committee, comprised of all fourteen (14) coastal ports, continues to meet. We are submitting to you the latest update to the Committee's publication "Navigation and Other Activities on Coastal Waterways and Harbors in Oregon and the Columbia River". This cooperative effort has resulted in a unified stand on Federal and State proposals impacting our port operations. Our thanks to Senator Mark Hatfield for urging this approach.

We again extend our sincere appreciation for this Committee's careful examination of our budget request for Federal funding that allows the coastal ports of Oregon to realize the benefits that accrue as a result of earlier channel and jetty improvement projects approved by this Committee. We firmly believe that the current system Congress uses to examine and to fund these coastal projects is working well and should be continued in the future.

Thank you for your continued and past support for Oregon's coastal ports and waterways.

Commissioner Wilbur E. Ternyik, Port of Siuslaw, Oregon
and
Chairman, Oregon Coastal Ports Maintenance Dredging Committee,
Oregon Coastal Zone Management Association

Statement of
The Port of Brookings Harbor

before the
Senate Appropriations Subcommittee on Energy and Water Development
and the
House Appropriations Subcommittee on Energy and Water Development

supporting the

Corps of Engineers Civil Works Budget Request for Operation and Maintenance
Dredging of the Oregon Coastal Ports for Fiscal Year 1995-96

Mr. Chairman:

The Port of Brookings Harbor, a medium size port authority located in Curry County, Oregon, appreciates this opportunity to comment on critical Corps of Engineer programs that are vital to our existence as an economic development agency in Southern Oregon. This Port is not just moving commercial fish products. It is the key element in the economic mix and fill in the development niches of tourism, recreation, industrial development and small business assistance. Without the annual maintenance dredging appropriations, the Continuing Authority Program, and the Minimum Dredge Fleet, the Port of Brookings Harbor could not continue these aggressive development strategies.

Changing the mission of the Corps of Engineers would mean dumping the cost on states or wiping out dozens of small communities and thousands of jobs. It is our understanding that local flood control, inland port channel maintenance and small port navigation projects will no longer be the business of the federal government under a new Administration plan for the US Army Corps of Engineers.

The plan proposed in the 1995-96 federal budget, will limit the Corps' participation in projects to only those of "national significance". The restructured Corps' mission would be limited to commercial navigation, interstate flood control, providing technical assistance to states and tribes, and environmental restoration.

Under the proposal, ports that don't pay into the Harbor Maintenance Trust Fund would not receive federal operation and maintenance (O&M) dredging, which is paid for out of the fund, thus eliminating small ports. The revised Corps' mission would also prohibit participation in future small projects for flood control, navigation, emergency stream bank erosion and beach erosion control under the Continue Authorities Program. Small environmental projects would continue.

Any changes in the Corps' current mission would effectively close down our community. Our channel would silt up within three years. The Port of Brookings Harbor generates millions in direct revenue from high valued commercial fish products into the community. This also directly relates to recreational boating activity of which the Port of Brookings Harbor enjoys the distinction of being the busiest recreational Port on the Oregon Coast. The total impact on the Chetco River area would be a loss that would ripple right through the community. The Chetco channel project may be small by comparison, but a loss of this project will have a substantial impact on our small coastal community. O&M dredging of coastal channels is a service provided by the federal government that has a quantifiable economic impact of more than twenty-seven to one for every dollar spent and provides a good return on the federal government's investment.

The Port of Brookings Harbor is a classic example of a shallow draft Oregon Coastal Port where, because of its' channel and narrow rocky entrance, the ability to perform the channel maintenance is based to a large degree on daily weather and equipment compatibility. The Corps of Engineers has proven time and time again to be flexible, responsive and concerned with the special navigational needs of shallow draft Port Authorities. The Corps' high level of service oriented programs and the Minimum Dredge Fleet is a crucial element in the continues viability of Coastal Oregon Ports.

In closing, the Port of Brookings Harbor extends its' appreciation to the committee for their examination of our strong support for the Operations and Maintenance Federal funding, the Continuing Authorities Program and the Corps of Engineers' Minimum Dredge Fleet.

Thank-you.

The Port of Brookings Harbor Commission

Mr. MYERS. Wilbur, we appreciate your testimony through the years and hope you really don't mean that about not coming back because Tom and I expect to be here a few more years. Hopefully Jim is, too. Don't leave us, or at least don't forget us.

Mr. BEVILL. We want you to stay with us.

Mr. TERNYIK. All right.

Mr. BUNN. Thank you very much.

And Doris Sheldon, if you would come up and join us, then you can follow John Fratt.

And, John, thank you.

Mr. FRATT. Thank you very much, Mr. Chairman. Congressman Bevill, it has been a while since I have seen you. I am John Fratt, from the Port of Kalama. We are on the Columbia River, 35 miles north of Portland, Oregon. We do grain, and lots of grain. I am here to speak on two issues, the deep draft river channel, the deepening of the Columbia River project, and the Corps of Engineers minimum dredge fleet.

I have submitted a report to you. I would just like to summarize a couple of the issues.

When you were last out, I think we were just getting the inkling of the need for a deeper draft. The current Columbia River channel is 40 feet in depth. It needs to be increased by three additional feet. The feasibility study needs to be completed and it is under process. It needs to be completed within the budget of $6.1 million that is agreed to by the local ports.

Incidentally, I am the Chairman of the Interstate Columbia River Improvement Project, which is doing the local cost share for the deepening of the project. Seventy-five percent of the ships currently leaving our elevators at Kalama are light loaded. This estimated $3 million loss and 46 jobs annually lost affects not only the Pacific Northwest, but also our hinterland; North and South Dakota, Minnesota, Nebraska, Iowa and Kansas.

And I sure would——

Mr. MYERS. Didn't get to Indiana.

Mr. FRATT. I sure would like to go to Indiana, too. Maybe some day. But indeed, our hinterland, the interior, is exporting to the new markets of the Pacific Rim. We are looking towards the expansion of China and opening that.

We had an exciting speaker this afternoon talking about the new markets in China. Indeed, the new vessels that are plying the river are wider, and they are deeper. Forty-three feet is needed, and needed rapidly.

I am asking for your support in the full funding of the feasibility study and encouragement of the Corps of Engineers to complete the study in a timely fashion. Ahead of time would be nice, too.

Also the Corps minimum dredge fleet. This is a topic that I can speak directly to from two very specific items. Number one, on the Columbia River, there are occasionally sand waves. They build up, and they block the shipping channel. The Corps' hopper dredges can respond in a very immediate manner to these hazards to navigation. But the hazard to navigation that occurred on May 18th, 1980 was quite something else. Mount Saint Helens blew up. And it was within three days that we had three dredges working, all of them were either Corps dredges or the Port of Portland's dredge under contract.

Private contractors do a terrific job and worthy job. They took the—the soonest they could respond were three weeks after the emergency.

I urge you to keep this fleet, keep it active, and working. The Columbia River needs it. Coos Bay needs it. The Oregon coastal ports need it. The Washington coastal ports need it.

I appreciate the chance to appear before you today. I would like to invite you back out to the Pacific Northwest.

Mr. BUNN. Thank you very much.

[The statement of Mr. Fratt follows:]

Statement of

JOHN FRATT
EXECUTIVE DIRECTOR

PORT OF KALAMA
P.O. BOX 70, KALAMA, WA 98625
(360)673-2325

Before the

U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON APPROPRIATIONS

ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE

The Honorable John T. Myers, Chairman

Washington, D.C.

March 29, 1995

SUMMARY STATEMENT OF
JOHN FRATT
EXECUTIVE DIRECTOR
PORT OF KALAMA
P.O. BOX 70, KALAMA, WA 98625
(360)673-2325
Before the
Energy and Water Development Subcommittee on Appropriations
U.S. House of Representatives
March 29, 1995

Summary of Request

The Port of Kalama is located on the Columbia River in southwest Washington State, approximately 75 miles from the Pacific Ocean. Our major export is grain, which comes from numerous states in the Midwest as well as from 4 states in the Pacific Northwest. The high volume which we do at Kalama makes us **third** in dry bulk tonnage and **seventh** in total tonnage on the entire west coast. The efficient operation of the Columbia/Snake River system is our life-blood.

I want to thank the Committee for its support of Pacific Northwest transportation projects. The new navigation lock at Bonneville Dam has been of enormous help in getting product to our worldwide markets more efficiently.

The two issues that I wish to address today and to ask for your support are: **the deep draft channel deepening project on the Columbia River and the Corps of Engineers' minimum dredge fleet.**

COLUMBIA RIVER DEEP DRAFT CHANNEL DEEPENING PROJECT

* the 7 ports on the Lower Columbia River are working with the Corps of Engineers on a Feasibility study for a 43-foot channel;
* the Feasibility study needs to be completed in a timely manner and within the $6.1 million budget that has been agreed upon;
* the current 40-foot draft navigation channel causes ships to leave Columbia River elevators "light-loaded" -- this costs money and loses business for the elevator and for the Pacific Northwest and Midwest regions of our country;
* the vessels under construction are being designed for a 43-foot channel;
* I am asking for your support for full funding of the Feasibility study and for your encouragement to the Corps of Engineers to complete the study in a timely manner.

MINIMUM DREDGE FLEET

* the Corps of Engineers dredge fleet has responded quickly and effectively to emergency situations that have prevented costly and potentially dangerous delays in reopening navigation channels;
* work for both current and future operations and maintenance is more than adequate to keep the public fleet busy;
* the 7.5 million cubic yard (mcy) set-aside for private dredge contractors drives up the cost of dredging;
* I am asking for your support to retain the public dredge fleet and to reconsider the 7.5 mcy set-aside for the private dredge contractors.

STATEMENT OF

JOHN FRATT
EXECUTIVE DIRECTOR
PORT OF KALAMA
P.O. Box 70, Kalama, WA 98625
(360)673-2325

Before the
Energy and Water Development Subcommittee on Appropriations
U.S. House of Representatives
March 29, 1995

The Port of Kalama is located on the Columbia River in southwest Washington State, approximately 75 miles from the Pacific Ocean. I am John Fratt, Executive Director of the Port. The Port of Kalama has 18 businesses located within the Port industrial area, employing over 650 people. Firms operating on Port property include grain export companies, chemical companies supplying the pulp and paper industry, forest products heavy equipment manufacturers, wood products manufacturers (including dimension-cut lumber, log homes, cedar fencing and wood chipping), and a micro-brewery. The Port also has 300 acres of permitted, designated industrial land, ready for the siting of industry.

The two issues that I wish to address today and to ask for your support are: **the deep draft channel deepening project on the Columbia River and the Corps of Engineers' minimum dredge fleet.**

COLUMBIA RIVER DEEP DRAFT CHANNEL DEEPENING PROJECT

The deepening of the Columbia River navigation channel is of critical importance to the seven ports on the Lower Columbia River in Washington and Oregon. It is also important to the Pacific Northwest and the Midwest regions of our country. The Feasibility study which is currently in process needs to be fully funded and completed in a timely manner. The seven ports who are the local sponsors for this project are doing their part to see that this study is completed quickly. We have worked hard to secure our 50% share of the $6.1 million study. Anything you can do to encourage the completion of the study in a timely manner once it reaches the Corps of Engineers in Washington, DC would be most helpful.

This Feasibility study is especially important to the Port of Kalama because we are a major exporter of grain on the west coast. Last year we throughput 4.7 million metric tons of grain from the two facilities at Kalama. In 1990, our record year, we exported 8.3 million metric tons. This makes us third among all the ports on the west coast in dry bulk tonnage and seventh in overall tonnage. The grain goes out in panamax-size ships and because of the 40-foot draft limit of the Columbia River navigation channel, those vessels often have to leave the elevator not totally filled. In fact, the Peavey Grain Terminal at Kalama, which is our state-of-the-art facility, sends 75% of its ships out "light-loaded." Peavey estimates that these ships are leaving with 5,700 fewer tons of grain per ship than they are capable of carrying because of the 40-foot depth limit. This costs money for the elevator and loses business as well. Each foot of available draft equates to approximately 2,000 metric tons. The economic impact to the Pacific Northwest region from Peavey's loss is estimated at $3 million and over 46 jobs annually. And the Pacific Northwest is not the only region adversely affected by the reduced loads at Peavey.

At Kalama we service North and South Dakota, Minnesota, Nebraska, parts of Iowa, and Kansas, as well as the Pacific Northwest states of Montana, Idaho, Oregon and Washington. Feed corn arrives in 104-car unit trains from the midwest states for export to Japan, Taiwan, Korea, Australia, New Zealand, Malaysia, the Philippines, Russia, Bangladesh, and Sri Lanka. In order to maintain our market share and to remain competitive with British Columbia, we need a 43-foot channel so that we can send the ships out fully loaded.

An additional pressure on the River is the new generation of ships that are carrying the grain. The post-panamax vessels are getting larger and will require a 43-foot depth for full loading. For the United States to remain competitive in a world market, we must be able to handle the ships that service those markets. In order for that to be accomplished on the Columbia River, a 43-foot navigation channel needs to be studied. I urge the Committee to support full funding of this Feasibility study.

MINIMUM DREDGE FLEET

The second issue that I wish to discuss with you today is the importance of retaining the Corps of Engineers minimum dredge fleet. I would encourage the Committee to withstand pressure to further reduce the public fleet. The ability of the Corps' dredges to respond quickly to emergency situations has prevented costly and potentially dangerous delays in reopening navigation channels. Nearly a third of the nation's wheat exports pass through the mouth of the Columbia River. The loss of even one foot of draft due to slow response can cost each grain vessel $324,000 in cargo value. Emergency dredging is often required to restore the federal navigation channel to its authorized depth. Shoaling can occur very rapidly, and it has a potentially dangerous impact on export shipping. The work of the Corps' dredges protects our link to international markets. Their ability to respond in a crisis is critical.

My personal experience with the Corps' extraordinary response to an emergency occurred in 1980 when the public dredge fleet had the Columbia River navigation channel back in operation within three days after the eruption of Mt. St. Helens. It took the private operators three weeks to move their dredges on site. More recently the Corps' dredge ESSAYONS was called on to remove a shoal to allow an aircraft carrier to depart the Alameda Naval Air Station and last fall the public fleet's YAQUINA was pressed into service to restore the navigation channel at Susuin Bay. No private hopper dredge was available to perform either project.

Work for both current and future operations and maintenance is more than adequate to keep the public fleet busy. In the Pacific Northwest the Columbia River, Coos Bay and Grays Harbor deep draft navigation projects are in various stages of study, authorization and construction to deepen the channels. The construction of these channels would go to the private dredge fleet, but these new projects will need to be maintained to remain fully operational. Maintenance of the deeper channels will require the full capability and responsiveness of the Corps' dredges.

Finally, the 7.5 million cubic yard (mcy) set-aside for private dredge contractors has driven up the cost of dredging. This arrangement has dropped the Corps' hopper dredges' working days from an average of 230 days in 1992 to 180 days in FY 1993, '94 and '95. Forcing the Corps to keep dredges on "stand-by" status for a large amount of time increases the cost-per-yard for the public fleet when spread out over the entire year. The Corps' dredges are geographically pre-placed to respond quickly to impediments to navigation in federally authorized navigation channels. They serve as a "fire department" for the nation's federally authorized navigation channels. The existing four Corps' hopper dredges all were designed and constructed and have been operated and maintained to perform the very important mission of emergency response. Three of the four remaining Corps' hopper dredges are only in the 10th year of an expected 50 year life. Failure to fully utilize them would waste taxpayer dollars.

Ninety-five percent of our nation's international trade is carried on ships. Many of those ships use navigation channels which require operations and maintenance and emergency dredging. The

Corps' dredges play a very important role in protecting the trade and transportation infrastructure of the entire West Coast. Their pre-positioning, responsiveness, and capabilities make them uniquely valuable to our export and natural resource-based economies. We encourage you to resist efforts to reduce the Corps' hopper dredge fleet.

CONCLUSION

Thank you for this opportunity to speak to the Committee on major issues affecting the economic vitality of the Pacific Northwest.

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Mr. BUNN. Ms. Sheldon.

Ms. SHELDON. My fellow commissioners extend their thanks to this subcommittee for its past, fair and equitable support.

The Port of Garibaldi in Tillamook County has been the beneficiary of this interest and consideration. The Corps' 1996 budget of 3.6 billion will permit the Corps to follow through on planning and construction projects for which appropriations were made available in prior years. The administration's plan concerning policy changes for reinventing the Corps is maintained by these changes.

New funds are proposed only for projects of national significance. The budget is held at this level because of savings from reductions in personnel and administrative expense. For this effort, we applaud the Corps' efforts. However, when one considers the billions that have been invested nationwide over the last century, and one considers the trade that moves through the harbor and waterways, 3.6 billion to maintain this infrastructure and the competitive nature of the U.S., this is a necessary expenditure. The alternative is to allow these facilities to slowly erode and the infrastructure to be obsolete.

The money allocated for harbor dredging in Oregon and Washington and in California is 30 million, a sum that pales when one considers the shipping on just the Columbia is two-plus billion. This 30 million is spread equitable to all ports of these States, and their survival is dependent on this amount being maintained in the Corps' 1996 budget, and in future years.

The 30 million provides for the operation of the minimum dredge fleet, the Essyons and the Yaquina, and the development of the public dredge fleet is the result of many years of effort to improve our Nation's navigational channels. To deactivate all or part of the fleet is a wrong use of the authority and a waste of the resources. Once these vessels are mothballed and the crews are dispersed, it would be a very time-consuming task to ever reassemble and reactivate the vessels. It probably would never happen.

You have all heard the requests of the private dredge fleets to take over more of the Nation's dredging activities. On the West Coast, an allocation of 2.9 million yards has been made to the industry. However, you must remember that the West Coast, by geography and population, has a very different set of circumstances than elsewhere in the country. Because of our rough coastline and dangerous conditions, the Corps has been the only agency willing to invest time and money into the development of technology and equipment to operate in these conditions.

The private dredge is very active east of the Mississippi, and claims to have the machinery and expertise to accomplish the mission. The experience with private dredges in the West has been poor, at best.

The Corps' authorized 2.9 million yards to be done privately. It has done its best to fulfill this commitment. And private dredges operating in Oregon and Washington and California have been very unsatisfactory, and in three cases—San Francisco, Humboldt Bay and Coos Bay, Oregon—the Corps had to assist the privates in finishing the work.

Please, before this fleet is eliminated, consider our unique conditions and the absence of private expertise. Consider the past expenditures of taxpayers' money and the return these small ports provide to the local economies. The continuing spending authority which allows the Corps to authorize emergency projects is necessary for our particular problem. This gives the Corps the flexibility to do a project within their internal budget.

The Corps can respond to emergency situations, and it can plan small projects which it deems necessary to meet the local needs and emergencies. If this flexibility is not continued as part of the Corps' program, all projects will be forced to be submitted to the committee for approval and funding. And our small ports will be reviewed and we will have to pass the new test of national significance. Can you imagine the time it would cost to take—to rely to a local emergency?

The continuing spending authority program provides the means to accomplish these small ports with adequate review and minimum delay. The continued spending authority provides this leverage. And please allow it to continue. Oregon's ports are moving forward. Commerce on every level is increasing. Please help us to continue to move into the 21st century by supporting our needs.

Thank you for allowing me this time.

[The statement of Ms. Sheldon follows:]

Testimony of Doris Sheldon, Commissioner
Port of Garibaldi, Garibaldi, Oregon

Before the

Senate Appropriations Subcommittee
on Energy and Water Development

and the

House Appropriations Subcommittee
on Energy and Water Development

March 29, 1995

Supporting

The 1996 Operations and Maintenance (O & M) Budget for Corps of Engineers of $3.6 billion and specifically the $30 million budget to maintain navigation channels and harbors in the Columbia and Willamette Rivers, and the dredging of the Coastal Ports along the Oregon and Washington Coast;

and

To support the continued operation of the Corps of Engineers Minimum Dredge Fleet;

and

To support the maintaining of the continuing spending authority for the Corps of Engineers.

My fellow commissioners extend their thanks to this subcommittee for its past fair and equitable support. The Port of Garibaldi and Tillamook County has been the beneficiary of this interest and consideration. The Corps' 1996 budget of $3.6 billion will permit the Corps to follow through on planning and construction projects for which appropriations were made available in prior years.

The administration's plan concerning policy changes for reinventing the Corps is maintained by these changes. New funds are proposed only for projects of national significance. The budget is held at this level because of savings from reductions in personnel and administrative expense. For this effort, we applaud the Corps efforts. However, when one considers the billions that have been invested nationwide over the last century, and one considers the trade that moves through the harbor and waterways, $3.6 billion to main this infrastructure and the competitive nature of the U.S., this is a necessary expenditure. The alternative is to allow these facilities to slowly erode and the infrastructure to become obsolete.

The money allocated for harbor dredging in Oregon, Washington, and California is $30 million - a sum that pales when one considers that the shipping on just the Columbia is $2+ billion. This $30 million is spread equitable to all ports of these states, and their survival is dependent upon this amount being maintained in the Corps' 1996 budget, and in future years.

The $30 million provides for the operation of the Minimum Dredge Fleet: Essayons, Yaquina. The development of the public dredge fleet is the result of many years of effort to improve our nation's navigation channels. To de-activate all or part of the fleet is a wrong use of your authority and a waste of resources. Once these vessels are mothballed and the crews dispersed, it would be a very time consuming task to ever reassemble and reactivate the vessels. It probably would never happen.

You have all heard the requests of the private dredge fleets to take over more of the nation's dredging activities. On the West Coast, an allocation of 2.9 million yards has been made to the industry. However, you must remember that the West Coast, by geography and population, has a very different set of circumstances than elsewhere in the country. Because of our rough coastline and dangerous conditions, the Corps has been the only agency willing to invest time and money into the development of technology and equipment to operate in these conditions.

The private dredge industry is very active east of the Mississippi, and claims to have the machinery and expertise to accomplish the mission. The experience with private dredges in the West has been poor, at best. The Corps authorized 2.9 million yards to be done privately. It has done its best to fulfill this commitment. Private dredges operating in Oregon, Washington, and California have been very unsatisfactory, and in three cases (San Francisco, Humbolt Bay, and Coos Bay, Oregon), the Corps had to assist the privates in finishing the work.

Please, before the fleet is eliminated, consider our unique conditions and the absence of private expertise. Consider the past expenditure of taxpayers' money and the return that these small ports provide to the local economies.

The continuing spending authority which allows the Corps to authorize emergency projects is a necessity for our particular problems. This gives the Corps the flexibility to do a project with their internal budget. The Corps can respond to emergency situations, and it can plan small projects which it deems necessary to meet the local need and emergencies.

If this flexibility is not continued as part of the Corps' program, all projects will be forced to be submitted to this Committee for approval and funding. Our small projects will be reviewed and will have to pass the new test of "National Significance". Can you imagine the time and cost it would take to reply to a local emergency? The continuing spending authority, program provides the means to accomplish these small projects with adequate review and minimum delay.

The continuing spending authority provides this leverage. Please allow it to continue.

Oregon's ports are moving forward. Commerce on every level is increasing. Please help us to continue this move into the 21st century by supporting our needs.

Thank you for allowing me this time. It is appreciated.

Mr. BUNN. Thank you.

And I want to thank each of you for your testimony. And I would just like to comment, as a new Member of the committee, I understand the senior members have seen over many years the development of the situation.

Just one of your comments that was of interest to me was a comment about the rough coastline. And I would never understood, in fact I had not seen the Atlantic Ocean until I was a Member of Congress and came to the east. And so until a few weeks ago, I had no idea the significant difference between the coastlines. So I do appreciate your comments.

Ms. SHELDON. Thank you.

Mr. BUNN. Thank you, Mr. Chairman.

Mr. MYERS. Well, thank you, Jim, for this afternoon. And in closing, thank you, Doris, for your testimony once again, and John and Wilbur, thank you.

Mr. TERNYIK. Mr. Chairman, one other thing. A long, long time ago——

Mr. MYERS. Certainly, you earned it.

Mr. TERNYIK. A long, long time ago in history, I went through the Marine Corps in San Diego. Lo and behold, I was in platoon 410 with 38 Hoosiers.

Mr. MYERS. Is that right?

Mr. TERNYIK. That is right. Every one of them a solid good citizen.

Mr. MYERS. Tell him again, will you, this Alabamian here.

Well, in closing, the Chair wishes to thank first the many witnesses we have had this year in the past six weeks. We have had several hundred, and several volumes of testimony. And so often, our committee, being Tom Bevill and myself, we have been misunderstood, because we have little levity as we go along.

People say we don't get treated that way, you know, you made fun. Well, we have fun and we take very serious, your testimony is very serious, and we certainly consider it that way. But because we happen to have a little levity and kid each other, it makes the day go a little easier. We hope it does for you, too.

But we do thank all of you, the witnesses that are still here this afternoon, especially those who testified all year, for your very valuable testimony. We do consider it. We have a little fun as we go along, but most especially I want to thank—this is my first year as chair, after all these years of Tom chairing it, Mr. Bevill chairing it. He finally let me have the gavel this year. Took all the money.

But I want to thank the members of the panel here, Rod, your first year here as a new Member of this committee, and Jim, for your testimony here and your work today. And we thank all of you.

And, Tom, thank you for the courtesies you have extended to me, as we all extend to each year. We came to Congress together, and I suppose—Wilbur, you keep talking about quitting. Tom and I aren't talking about quitting, but I suppose when we leave, we probably will leave the same time, too.

Mr. TERNYIK. We certainly want both of you to hang in there now.

Mr. MYERS. Well, why are you quitting then?

Mr. TERNYIK. I have some health problems with my wife. I need to address those.

Mr. MYERS. I am sorry to hear it.

Mr. BEVILL. Wilbur, I hope that you will come and visit us anyway. We are always glad to see you and all of you. You are great to work with. And Jim here is doing a great job, as you know, and we appreciate him, and we are going to be working very close with Jim. And so your future is in good hands, I would say.

Mr. MYERS. If you had to elect him so he could see the East Coast. Tom, do you have anything further? Rod?

Well, again, this will conclude—Doris, you ended our formal hearings this year. But I am sure, with Jim, we are going to hear about your projects again when we start marking up in a few weeks. But we do appreciate very much all the witnesses this year and thank you for continuing to give your support. And we will try to—I just wish we had a little more money to do some of the things we have to do.

But the committee will stand adjourned subject to the call of the House—the Chair, I mean, pardon me.

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